

# American Aviation

The Air Industry's Pioneer Independent Magazine

MARCH 15, 1950

## The Cosmic Kidoodle

**PARDON ME** for sticking my neck out on a subject I don't know much about, but I can't help but express some misgivings after attending the two-day Aviation Education Conference at Atlantic City Feb. 23-24.

Here was a conference with an impressive advance billing of big names and important-sounding topics, sponsored by the American Association of School Administrators, and a program of six pages in fine print. I was attracted out of curiosity and with a sense of anticipation that something big

must be in the wind. The wind was there, all right, both from a strong cold front moving in from the west and from the conference itself.

As it turned out, the main purpose of the conference was to create a new organization called the National Aviation Education Council, an advisory body whose membership is to be "widely representative" of organized education, labor, industry and government. There was unanimity of opinion that the Council should be "advisory" but no one was very clear as to whom or what the Council was to be advisory to.

It may well be that my inability to penetrate the fog of high-sounding words and phrases and vague purposes that dominated the conference is due solely to my own thick head, in which case I offer profound apologies, but when anyone starts talking about aviation education and forming a new organization in a field already cluttered up with organizations, I want to start asking some questions.

I want the purposes sharply defined so I can understand them. I want to be sure that a new organization isn't being started by a bunch of chronic professional organizers just for the purpose of starting a new organization. I want to know who is trying to sell them—and why. I want to know who is going to be the beneficiary. My thick head demands clarity of issues and purposes, and simplicity and directness. I want a definite clear-cut goal or reason-for-being. I also want to know—and this is most important—who is going to be paying the bills. Otherwise I get an acute sense of frustration.

Let me leave it to a bunch of educators to fix up a program to end all programs. Except for two luncheons, a dinner and two general sessions, the conference was divided into four groups for education, labor, in-

(Turn



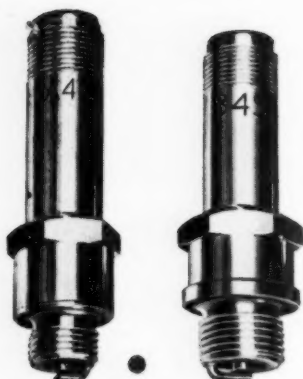
### Capital's V.P.-Operations & Maintenance

J. B. "Jim" Franklin, vice-president of operations and maintenance with Capital Airlines, recently started his 16th year with the company. He has worked as a pilot, supervisor of the pilot school, superintendent of maintenance and director of operations and maintenance with Capital. Franklin has brought about major improvements in his two departments to make a large contribution to Capital's improved financial position. (See page 28).

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The Auto-Lite A4S and B4S Aircraft Spark Plugs are medium priced for light aircraft use. These plugs, combined with shielded harness, reduce radio interference, help get dependable operation at lower costs. The famous Auto-Lite one-piece construction of these plugs permits sale below prices of other shielded plugs.



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Auto-Lite developed the 18A-1 for the most rigid requirements of civilian aircraft. This precision-made 18MM plug has ball type terminal, multiple electrodes, one-piece shell design, corundum insulator.

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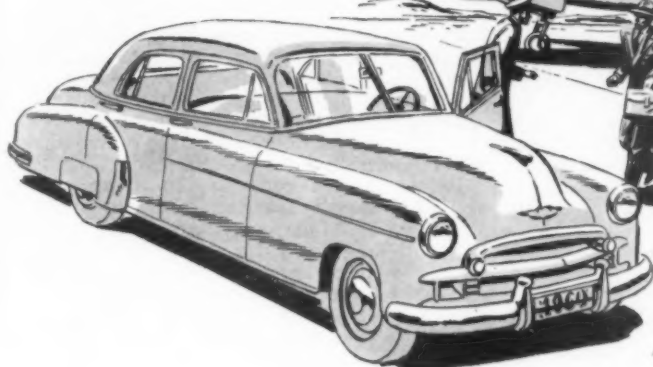
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A request on your company letterhead will bring your copy of our special Aircraft Spark Plug Catalog packed with useful information such as latest C.A.A. and Engine Manufacturer's type specifications, service instructions and other vital facts.

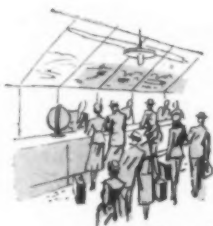


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In a short time thousands of car owners have been diverted to plane travel from long distance driving by the Plane-Auto Travel Plan... which is a plan of co-operation by the Hertz Driv-Ur-Self System and air lines. And no wonder, when you realize that now travelers can reserve a new car from Hertz before they leave home in over 450 cities throughout the United States, Hawaii, Cuba, Great Britain and Canada, and be sure that the car will meet them at the airport, if desired, filled with gas and oil, properly insured, all ready to go! And at surprising low rates.

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## BACKGROUND & TRENDS

### Airing Their Views

Three aviation officials revealed their thinking on current problems recently before the House Interstate and Foreign Commerce Committee.

Del Rentzel, CAA Administrator: CAA study suggests that the initial step toward making the federal airways self supporting begin in 1953 with a **tax of 1.5c per gallon on high octane aviation gas**, bringing in \$8.5 million annually. Private flying's poor postwar showing is disappointing. Need is for a plane with more utility—one that will fly at 20 mph yet have a 100 mph top speed, operate from a two-acre field and possibly be roadable. Among CAA's legislative needs: right of security control over planes moving in critical areas; right to exchange personnel with Department of Defense for closer coordination of problems; safety jurisdiction over U. S. planes operating between foreign points; passage of S. 1281 and H. R. 4199 providing increase from 25% to 50% of federal share of land costs on federal airport projects.

Joseph J. O'Connell, CAB chairman: **Board's job is to strike a balance** between desire for more and more service and the reasonable economic potential of the service. An air route pattern that is satisfactory today can be quickly out-dated by technological changes. CAB intends to take whatever action it can against purely destructive competition. There is too great a fare diversity, and there must be more concentration on a limited range of promotional and special fares. Long-range air fare trend must be downward, but not until justified by decreased costs. Except in certain specialized fields, CAB is disinclined to support further air traffic expansion through more subsidy. There's no downward trend in freight rates, and they should be temporarily raised in some cases. CAB opposes recreation of the Air Safety Board.

Robert Ramspeck, Air Transport Association's executive vice president: There should be **no drastic change in major policy** affecting the airlines. If Congress, government agencies and airlines follow present policies, the airlines will continue the progress toward self-sufficiency, "and that progress will be fairly rapid."

### No Takeover in Case of War

In the event of war, present plans are for the **airlines to operate for the military on a contract basis**. The National Security Resources Board is studying such a program. Maj. Gen. L. S. Kuter, Military Air Transport Service commander, told a Senate committee that plans contemplate use of civil transports initially in a "contractual status" under military control and that organizational know-how and ability of civil operators "will be retained and preserved and used to the best national interest, military or civil."

### Airlift Shortage

Military Air Transport Service and the civil air transport industry are now nearly **five and one-half billion ton-miles under the strategic lift capability** needed in case of war. Here's how it figures: wartime need would be 7.5 billion annual ton-miles. MATS can now provide three-quarter billion annually. Civilian strategic aircraft would add 1.5 billion, for a total of two and a quarter billion. About 10% of this lift would be needed for route support. Result: a 5.5 billion deficit. Del Rentzel, CAA Administrator, told a House committee that the deficiency is more than twice the entire present civilian and military air fleets combined. Need for

constantly-improving transport planes is a military as well as a civil problem, and some type of government assistance is necessary if the U. S. is to maintain its transport aircraft design lead, he warned.

### Prototype Agreement

An Air Coordinating Committee group has **agreed on provisions of a prototype aircraft bill**, and approval of the full ACC is expected, after which the proposal will be forwarded to the Bureau of the Budget. The ACC group has met informally with Budget, but officials of the latter didn't commit themselves other than to say they'd forward the bill to President Truman for his consideration. Plan provides for government aid in testing, rather than construction, of prototypes, with program handled by Department of Commerce or CAA. It won't provide specifically for use of North American B-45 jets in a joint military-civil operation under simulated and actual conditions on the civil airways, but will be worded so that the planes could be used if available. It's reported that Department of Defense's earlier willingness to have the B-45's used has cooled.

### Business for the Airlines

Domestic airlines are happy about Military Air Transport Service's cancellation on Mar. 1 of its **transcontinental "Statesman" passenger flights**. It will mean a welcome increase in the number of military personnel using commercial air, and it's long-haul traffic. The Statesman was flying non-stop four times weekly between Washington, D. C. and Fairfield-Suisun Air Force Base, Fairfield, Calif., and hauled 861 passengers (both ways) in January. Off-the-cuff estimates were that the airlines might pick up anywhere from 100 to 400 passengers a month. MATS will carry some passengers on cargo flights connecting major military supply depots, but it will take at least 24 hours to cross the country, and it is expected that military personnel on any kind of urgent business will use the airlines. The MATS cargo runs will be once daily Washington-Dayton-Oklahoma City-Denver-Salt Lake City-Fairfield, and Washington-Dayton-Macon-Mobile-San Antonio-El Paso San Bernardino-Fairfield. The Statesman was canceled in order to transfer the VR-3 squadron, which was operating it, to Alaskan service.

### Among the Airlines

**Scheduled air coach flights** have bitten into non-sked business deeper on Florida routes than transcontinentally. One reason is probably less difference in fares on former routes than on latter. Scheduled coach flights to Florida have been hitting 80% load factor and over. Colder weather in the east, incidentally, has boomed Florida air traffic, which got off to a very slow start this winter . . . **Western of California's** coach flights are hitting 80% load factors . . . Sidney Stewart, president of **Chicago & Southern Air Lines**, pooh-poohs rumors that C&S will merge with TWA. Rumors started when Ralph Damon, TWA president, visited Stewart, an old friend, in Memphis . . . C&S has **no plans to replace its DC-3's** or to start coach service . . . **Air Transport Association's** advertising committee still has ideas about selling the ATA board of directors on a **national advertising program**. The committee is now doing some preliminary work . . . Although **Pan American Airways' 1949 business** was up 20%, the state of its financial report for the year is going to depend on how foreign exchange revenues balance out, says J. T. Trippe, president, admitting that currency discounts had a serious effect.



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## POWER TO BURN... FROM AIR!

Chief among the startling new features of the radically designed Convair XP5Y-1, long range flying boat, is the first gas turbine *pneumatic* auxiliary power system ever built for aircraft. It was designed by AiResearch Manufacturing Company in cooperation with the Navy Bureau of Aeronautics and Consolidated Vultee Aircraft Corporation.

Vital to the system are the first air turbine-driven alternators for aircraft, which operate all major accessories. In the air they are operated by main engine bleed air from the new Allison T-40 turboprop engines. Each of the two alternator drives produces up to 70 shaft horsepower and maintains constant rpm regardless of the varying accessory loads.

When the airplane is afloat in some harbor or remote lagoon, power is supplied by the system's small AiResearch gas turbines, making the XP5Y-1 the first

turbine-propelled airplane capable of maintaining heat, light, radio communication and all necessary accessory activity without operating the main engines.

In addition, AiResearch pneumatic auxiliary power is utilized for starting the main engines. It is the first airborne starting system for turbine-propelled aircraft which makes possible an unlimited number of self starts without aid from any ground source of power.

● **Whatever your field—AiResearch engineers—designers and manufacturers of rotors operating in excess of 100,000 rpm—invite your toughest problems involving high speed wheels. Specialized experience is also available in creating compact turbines and compressors;**

**actuators with high speed rotors; air, gas and liquid heat exchangers; air pressure, temperature, electronic and many other automatic controls.**



\* An inquiry on your company letterhead will get prompt attention. AiResearch Manufacturing Co., Los Angeles 45, Calif.

MARCH 15, 1950

## News in Brief

**Strike Vote:** Mechanics at Northwest Airlines have voted in favor of a strike to support their dispute with management over the alleged illegal farming out of maintenance work contrary to the terms of the union contract. Approximately 1,850 employees are represented by the International Association of Machinists, bargaining agent for the mechanics.

**Maintenance Strike:** The strike of 4,600 American Airlines maintenance employees, represented by the Transport Workers Union-CIO, was entering its second week as this issue went to press. The dispute was said to have narrowed to the effective date of a new wage contract. Only two months separated management and the union when the walkout occurred. The union contended that the strike was 93% effective, while American said it was operating 46 daily flights or approximately 20% of normal service. The National Mediation Board offered its mediation services, provided the employees would return to work. Earlier NMB had announced that union workers walked out on mediation conferences on Feb. 28. The company contended the strike was illegal and made return-to-work a condition of mediation—a condition later upheld by the Board in its invitation to the parties to resume negotiations. Parties were meeting separately with Board officials in Washington the middle of last week.

**70-Group Air Force:** Legislation which would require the President and the Secretary of Defense to carry out the will of Congress in the establishment of a 70-group Air Force has been introduced by Rep. Carl Vinson (D., Ga.), chairman of the House Armed Services Committee. The bill would give the Defense Secretary only a 5% leeway in reducing items in the military appropriation bill without consultation with Congressional Appropriations Committees.

**Passenger 'Copter Service:** Scheduled passenger service with helicopters, claimed to be the first ever operated by an airline, will be opened June 1 by British European Airways between London and Cardiff. Three Sikorsky S-51 helicopters, now being operated on the experimental night mail service between Peterborough and Norwich, will be used.

**TCA Anticipates:** Trans-Canada Air Lines has filed cargo and passenger tariffs for service between Montreal and New York, effective April 1, although the airline has not yet received official U. S. authorization to operate the route. TCA's application is awaiting final CAB decision and Presidential approval, and both should be forthcoming shortly. TCA's proposed general commodity rate (\$5.05 per 100 lbs.) is 9c less than that of Colonial Airlines, but passenger fares are the same.

**Experimental Fare:** A 15% reduction in fares has been put into effect by Central Airlines after CAB approved the experimental reduction for a six-month period. The 5.2c per mile fare, applying to 3-passenger Beech Bonanzas, is well below the industry level of 6.1c and was protested by Braniff Airways and Continental Air Lines.

**Extension for Feeders:** CAB has proposed a three-year extension beyond March 31, 1950 for feederline certificates of Challenger Airlines and Monarch Air Lines. Both lines have requested permanent or five-year extensions to conduct their merged operations with "a degree of permanency." CAB also proposed the elimination of various "uneconomic" stops from the routes of the two carriers.

## American Aviation

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### Other Publications

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**Official Airline Guide:** Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, \$9.00 one year; Canada, \$9.50. All other countries, \$11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. State 2-2154. C. N. Johnson, managing editor.

**Air Tariff Reports** (Cargo and Passenger): Published daily except Saturday, Sunday, and holidays. Rates on request. William V. Henzey, managing editor.

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# Blueprint for *Air Transportability*



THE NEW Fairchild Packet exemplifies the continuous teamwork between the U. S. Air Forces, Air Materiel Command and the aircraft industry. As always, Air Materiel Command aeronautical experts worked closely with Fairchild designers and engineers to develop the Packet—now setting new military standards for efficient movement of cargo and personnel.

Air Force requirements called for a practical cargo and personnel carrier, versatile enough in design and operation to make it efficient for a variety of missions. The C-119, expertly tailored to fit these requirements . . . carries cargo and personnel, tanks, guns and vehicles,

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An advanced version of the famed Fairchild C-82, the new, larger and faster C-119 is the result of imagination and engineering skill and production ability.

The Air Force and Navy will use these aircraft for numerous transport assignments. C-119's will play a vital role in the ever-expanding field of military air operations. Here is another Fairchild "first" in air transportability!

 **ENGINE AND AIRPLANE CORPORATION**  
**FAIRCHILD** *Aircraft Division*  
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## EDITORIAL

(CONTINUED FROM PAGE 1)

dustry and government. Each conference, believe it or not, had the following: a topic, a leader, and observer, a researcher, a recorder, four presentors of the subject, a half-dozen or so discussants (brother, that's a new word for the books!), and a raft of consultants. Just about everyone present was assured a place on the program although it seemed that if you were merely a consultant you didn't rate very high socially.

I never did find out just who was the motivating force behind the conference and the new Council, whether it was industry trying to sell the educators on getting more aviation education into the schools, or the educators wanting more help from industry and labor and government in the furtherance of aviation education. Or was it an empire-building move on the part of the CAA? I had a distinct feeling that the whole issue was being forced considerably beyond a natural demand. And a feeling, too, that the formation of a Council was the first point of business and that then somebody would sit around and figure out what to do.

Aviation education is a pretty broad and pretty vague subject. If it is model building, there are ample outlets and activities without requiring a big national council. If it is boosting the sale of tickets on commercial airlines, an educational council would seem to be treading on thin ice; the airlines (notably United, PAA, TWA and American) have done an excellent job of supplying non-commercial literature and materials, and providing educational courtesy hops, without crossing the border of commercialism in the schools. If it is to train people for jobs in aviation, the educators are 'way off base, because jobs in aviation, as such, are declining and anyway the private aeronautical schools are infinitely closer to vocational requirements and better equipped to train students.

If aviation education is to help build a bigger and stronger military air force, then the Atlantic City conference was scarcely aware of it because the words "national defense" were dragged in casually and as an after-thought. If it is to teach people to fly, the Council could hardly do more than the hundreds of millions of dollars already spent in subsidized training, books, booklets and school courses—and the production of 3,300 personal airplanes last year would seem to be a small result indeed for the educational work of the past.

Of course aviation education can also mean the study of the social impact of the airplane on the modern world and this is one area of effort in which the educators could spend much time. But the proper attack on this problem is through textbooks. The airplane needs to be studied in relation to geography, history, the social and applied sciences, and other courses. But this would seem to be a job primarily for educators, not for a multi-headed advisory Council, and in all the meetings I attended the emphasis seemed to be not on the social impact of the airplane but on the commercial aspects such as airlines, private flying, and jobs.

I submit that the crusading task of obtaining public acceptance of the airplane was achieved by the

war and that aviation today is largely commercial. In the earlier days there wasn't enough commercialism to taint the efforts of anyone trying to boost aviation. But today aviation is a business. If it isn't, it ought to be. It's got to be sold just like other industries sell toothpaste, Grade-A meat, automobiles and foot-warmers. The educators can do a lot in a general way but there is a sharp dividing line between educational interest and industrial (or commercial) interest that had better not be crossed, else industry one of these days will be charged with propagandizing in the schools. The airlines and the aircraft manufacturers have done a remarkable job, so far, of steering clear of that pitfall.

Something else disturbed me at Atlantic City. At least 15% of the attendance of 150 consisted of CAA people, all there at your expense. True, the CAA is charged with promoting aviation—as per a law passed by Congress when aviation really needed promoting. True, the CAA ought to have an education division. But when each region sends a man, some from the opposite side of the country, and when Region No. 1 sends four female secretaries down from New York to take down and transcribe tens of thousands of words of the dreariest and most futile sort of drivel, I sort of resent it. Maybe I'm wrong about that, but I and you and you and you are all paying for that sort of thing.

It just happens that there are 57 federal agencies with education departments or divisions or bureaus or something. It just happens that there are a lot of little guys who are trying to make the federal government all-powerful in educational influence throughout the country. Control of educational channels is, my friends, one of the first steps toward the end of freedom and democracy. Unimportant in the over-all as it was, I just can't reconcile the CAA being so deeply involved (on behalf of us taxpayers) in the Atlantic City conference. The CAA's efforts to aid private flying, costing a great deal of money in the past, seems to have resulted chiefly in a skidding personal airplane production of from 38,000 in 1946 to 3,300 in 1949. So just what is it that the CAA had to sell to those educators at Atlantic City?

I don't really mean to throw cold water on a good sound educational program for aviation, but the industry representatives at the Atlantic City conference were mostly silent and mostly skeptical. Everybody in aviation wants to sell more airline tickets, more airplanes, more aviation school courses, more business for airports and so on. But how does this all jibe with a bunch of the professional organizing type of educators who just simply love to hold meetings and talk to one another? Sooner or later—mark my word—the "bite" will go out for money to support another organization. One source is industry and the other is the federal government. Industry runs the risk of being accused of trying to influence school teaching if it coughs up. Government, the Good Lord knows, is already so deep in spending that probably a few more billion won't matter. Whatever your point of view, I wish you could read the records of those discussions. That's all, brother.

WAYNE W. PARRISH

AMERICAN AVIATION



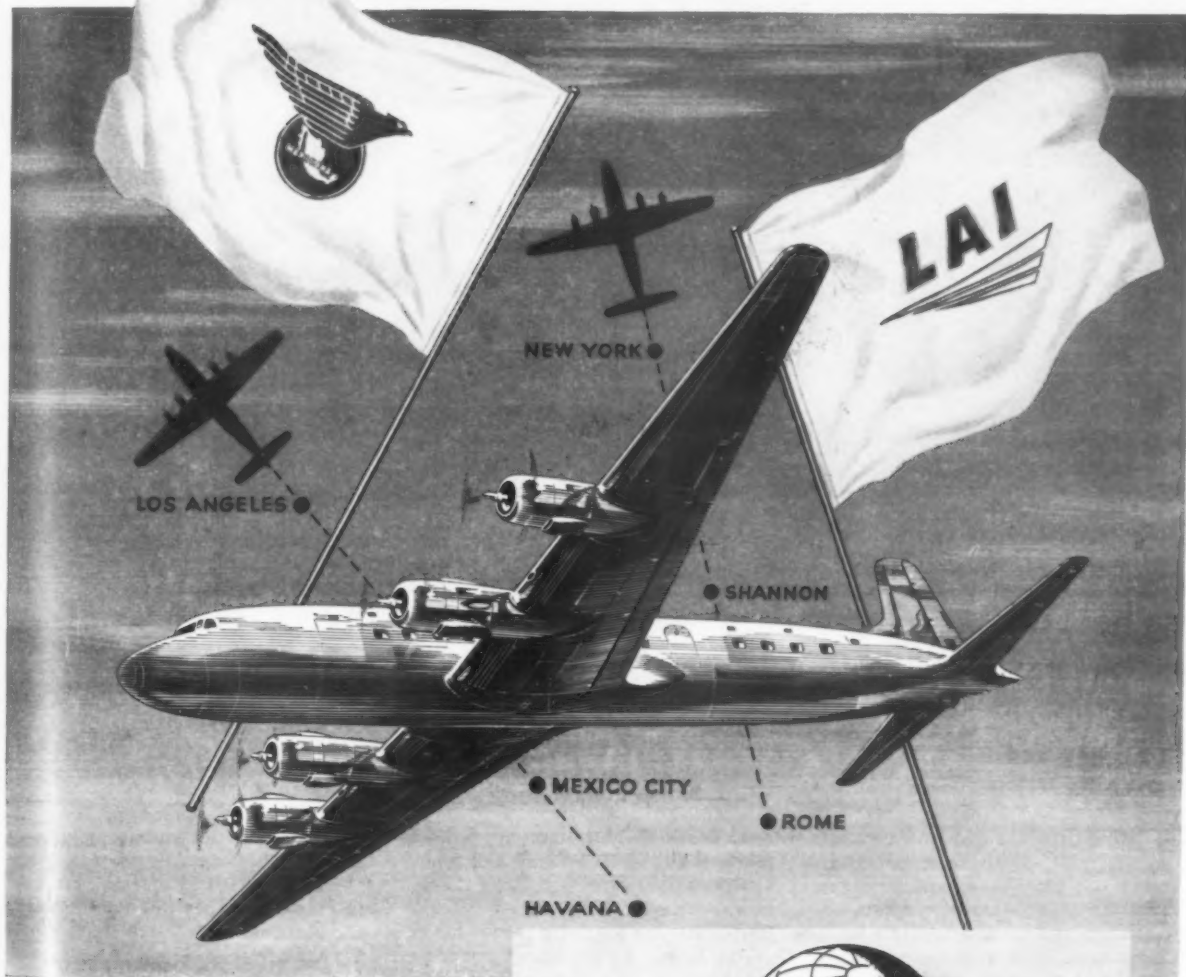
# Two more airlines... join the great DC-6 parade!

**L**atest airlines to order Douglas DC-6 transports are Compañia Mexicana de Aviación (C.M.A.) and Lines Aeree Italiane (L.A.I.).

As the DC-6 enters the service of these progressive, international airlines, it will bring to their customers the fastest, most comfortable, most luxurious accommodations for travel by air available in the world today.

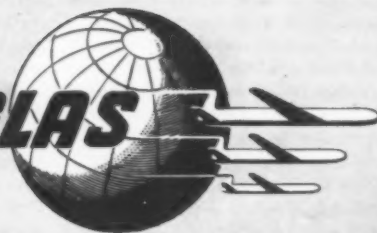
A total of 185 DC-6s have now been delivered or are on order—assuring continuous operation of the DC-6 production line well into 1951. Thus Douglas enters its fourth decade devoted to the creation of the finest in fast, dependable aircraft.

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA



## DEPEND ON DOUGLAS

30<sup>TH</sup> ANNIVERSARY YEAR





## Now DC-4 operators, too, can cut brake maintenance costs

**T**HE AIRLINES that have switched their DC-3s to B. F. Goodrich brakes have made important reductions in maintenance costs. TWA reports substantial savings on its Stratoliner brake maintenance after making the switch. Now DC-4 operators can do the same!

The CAA has approved B. F. Goodrich brakes for the DC-4, following extensive tests by Capital Airlines.

Simple design is the reason behind the low upkeep of B. F. Goodrich Expander Tube brakes. Many of the extra parts and linkages found in other brakes are eliminated. A screwdriver and

wrench are the only tools needed for relining. Full-circle braking action and low-pressure operation make for slower, more even wear. New, cemented brake blocks that use no rivets permit use of all the lining. As a result, maintenance man-hours, flying-time losses and replacement costs are all cut!

What's more, pilots report they like the "operational feel". This brake cannot lock or grab. It responds smoothly to minimum pressure. It takes emergency overloads better.

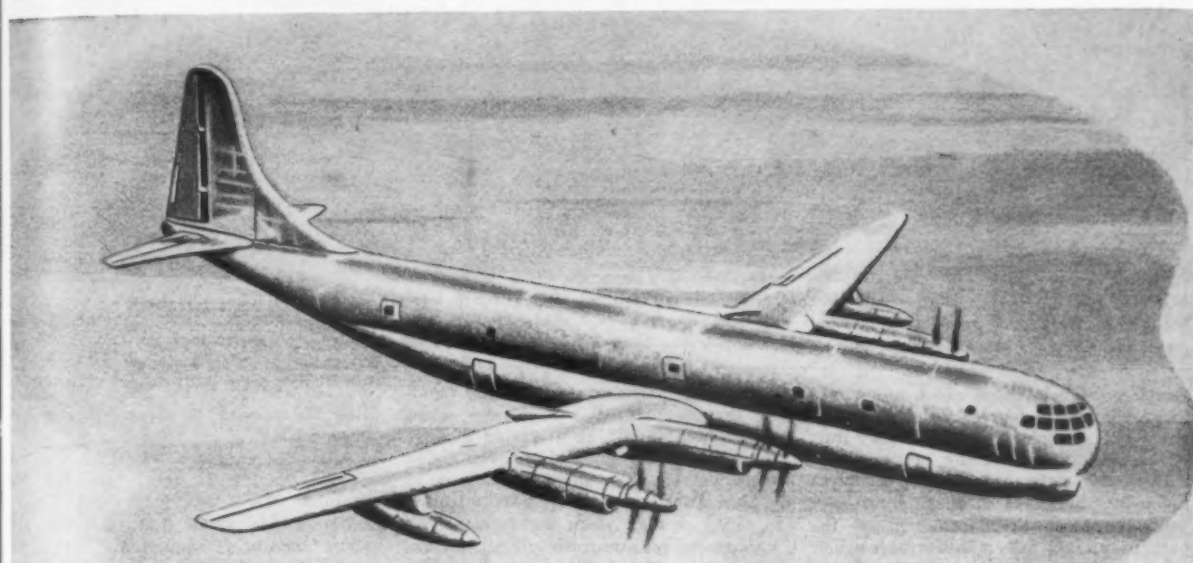
The B. F. Goodrich brake also saves weight. It can be designed lighter for

a given amount of kinetic energy than any other brake.

Here are a few of the planes that are reaping these benefits of the BFG wheel and brake assembly: Stratocruiser, B-36, Constitution, B-47, Navion, C-124, B-45, P2V4, F-84, converted DC-3s, converted Stratoliners. Put your DC-4s in this good company. *The B. F. Goodrich Company, Aeronautical Div., Akron, O.*

**B.F. Goodrich**  
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AMERICAN AVIATION



ANOTHER ENTRY IN THE RACE to adapt turbo-prop engines to existing transport fuselages is the Boeing Stratofreighter. Boeing claims an increase of 22% in block speed would result through use of turbine power in both the C-97 and Stratocruiser.

## U. S. Bids for Turbo-Prop Transport Lead

The gap between United States and British progress in the field of turbo-prop powered transports is rapidly closing. It looks now as though the production and security aspects of the Navy-sponsored Allison T-40 engine are apt to be critical factors in determining how long it will take the U. S. to overcome Britain's lead.

Unlike the British industry, which spent much time, effort and money in designing new fuselages for turbo-prop transports, the U. S. industry shows every indication of adapting most post-war transport types to turbo-prop powerplants. This may well give the U. S. an opportunity to have jet transports in operation in 1952, about the same time as practical British designs.

While the agreement between Consolidated Vultee and Allison to develop the Turbo-Liner is undoubtedly the most startling development since announcement of the Allison engine, other progress is being made.

### Widespread Interest

Boeing has announced its interest in using the Allison T-40 to power the Boeing Stratofreighter. It expects to increase the ship's block speed by 22%, at the same time increasing payload and range.

Convair has a parallel development of the C-99, the military transport ship, now on the drawing boards and the

results are quite promising. (See page 13).

While The Glenn L. Martin Co. has not officially commented on adoption of turbo-prop engines to the Martin 4-0-4, the joint EAL-TWA announcement of the 65 plane order stated, "The new model Martin 4-0-4 will be the first production airliner designed and stressed for conversion to jet engine-driven propellers, when such latest type powerplants are released by the military services for commercial use, expected within three to five years."

While there are no specific indications as to Lockheed's plans in this field, both Fairchild and Douglas, two other companies with military transports, are known to be interested in use of the T-40.

Douglas has already sounded out some airlines on their interest in a DC-6 powered by the T-38 engines, the single unit version of the T-40. While no specific plan has been advanced, Douglas' C-124 shows possibility for major improvements in speed and other performance factors if equipped with the new type engines.

Fairchild's interest would center around adoption of the T-40 to the C-119 military transport and indications are that such a design proposal has already been submitted to the USAF.

One major factor expected to hamper developments to some degree is the lack of variety in available powerplants. The

Allison engines show unusually high promise for weight per horsepower and also for fuel consumption characteristics. But the T-40, rated at 5500 equivalent horsepower, and the T-38, rated at 2750 equivalent horsepower, do not provide the apparent need for variety.

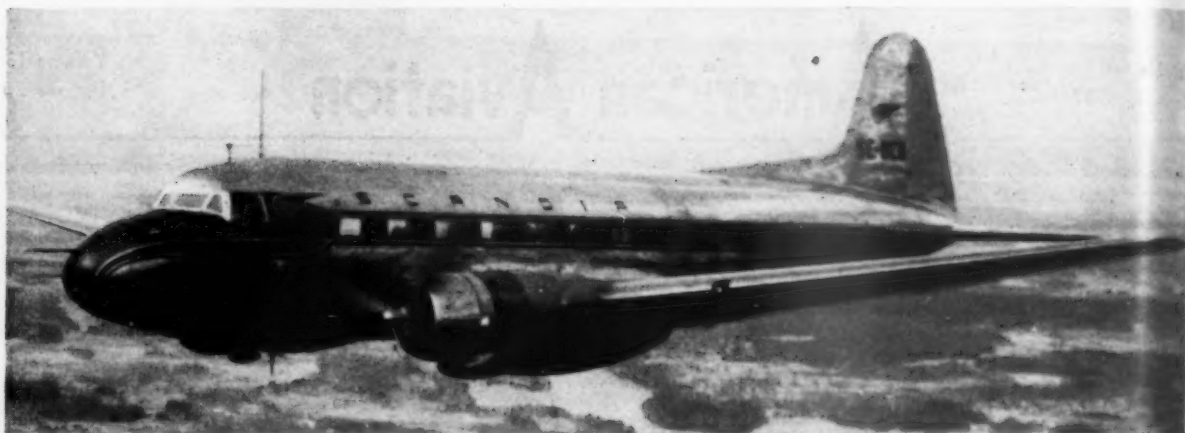
In airplanes such as the Convair-Liner, Douglas DC-6 and Martin 4-0-4, the single T-38 unit should provide a useful replacement for the P&W R-2800 engines while offering greater power as well as a net weight saving.

### Single T-38 Unit

Airplanes using the P&W R-4360 engine, and specifically the Boeing Stratocruiser series, will have a greater problem. The single T-38 is too small to meet the horsepower requirements in such a substitution, while the T-40 may prove too powerful. Since the jet engine must be operated at near rated power to achieve any degree of efficiency, it is possible that the 5,500 horsepower T-40 would raise Stratocruiser speeds above an allowable or economic range. The other possibility is that the T-38 power rating will be increased to a useful value for such an installation during the interim period.

There are indications that Pratt and Whitney Aircraft is well underway with the development of a turbo-prop engine which may relieve this condition to some extent. The engine is the T-34, a Navy





BOEING AIRPLANE CO. is surveying airline interest in the Saab Scandia, a Swedish-built twin-engine transport with interior arrangements for either 24 or 32 passengers. The manufacturer has been

attempting to interest U. S. manufacturers in license rights to the airplane. It is powered by P&W R-2180 engines, has a gross weight of 32,408 pounds, cruising speed of 250 mph.

sponsored development which may serve to provide some degree of design insurance. This is a single unit and may thus provide additional leeway in design.

Boeing's statements relative to a turbo-prop powered Stratofreighter have been the most direct comment on the part of an aircraft manufacturer other than Convair. Based on use of the Allison T-40, Boeing engineers predict major improvements in operating characteristics. A saving of 25% in the engine installation weight is foreseen. Range would be increased by 113% at maximum payload, 21% at half maximum payload and 8% at zero payload.

Boeing's design study cites nacelle modifications as the major problem in adapting the Allison T-40 to the Stratofreighter. Other desirable modifications include a change in the cabin pressurization system to use air from the engines rather than a separate supply system, new engine instruments, and use of external fuel tanks. As shown in the accompanying drawing, Boeing's future transport designs generally call for externally mounted fuel tanks.

In this instance Boeing claims the weight saving accompanying use of the T-40 would permit carriage of another 1,000 gallons of fuel. The company is now using 750-gallon external tanks on the B-50 and has actually designed successful tanks with 1,200 gallons capacity.

### Flight Test in August

Meanwhile, Convair's chief engineer, Frank W. Fink, estimates that the Turbo-Liner will be ready for flight test in August. The Turbo-Liner—the most advanced of proposals in the immediate offing—will have considerably higher gross weight than the present Convair-Liners.

Convair is working on increasing gross take-off weight from 40,500 pounds to 41,200, and landing weight from 38,600 pounds to 39,800 pounds.

Kits for modification of conventional Convair-Liners to accept the higher weights are now being distributed to the airlines. Certification at the higher

gross weight has been delayed by pending manufacture of a new nose wheel strut which should be available in July. This strut will be stressed for even higher gross weights than those in process.

Ultimately the gross weight will move to 43,500 pounds when the Allison T-38 reaches its mature rating. Allison expects the engine will be rated at 3750 horsepower at some future date. The higher gross weights which this will make possible will probably require additional strengthening of the main gear struts and center section.

Convair does not anticipate the turbo-prop Liner's increase in speed, as compared to the piston-powered Convair-Liner, will be of any great significance in attracting airline interests. Chief engineer Fink's estimate is a boost in cruising speed of about 25 mph at 16,000 ft. Neither will the net weight saving be as great as might be expected.

While the engine installation will represent about 2,000 pounds gross saving, the requirement for additional outer wing tanks general modifications and possibly an auxiliary power unit for engine starting, ground heating and similar functions, will cut this to a net saving of about 1,000 pounds.

Convair's faith in the turbo-prop is based on the economics of the greater payload and the smoother ride with this type power. In addition to the inherent passenger comfort provided by turbine engine transports, the complete lack of vibration should sharply reduce maintenance problems and related costs.

## Boeing Tests Market For Saab Scandia

Boeing Airplane Co. is now surveying the U. S. airline operators to determine the advisability of going into production on the Saab Scandia, a 24-32 passenger twin-engine transport. The Scandia has been flying since November

of 1946 and 10 of the ships are scheduled for service by Scandinavian Airlines System.

Almost a year ago the Babb Co. was named exclusive distributor for the Scandia 90A-2 in North and Central America and since that time the airplane has been recurrently mentioned as a replacement for Douglas DC-3's.

In September a Scandia made a demonstration tour of the U. S. and attracted very favorable interest on the part of several airlines. However, the idea of procurement problems associated with a foreign aircraft discouraged prospective buyers. The Scandia is manufactured by Saab Aircraft Co., Linköping, Sweden.

More recently Saab notified U. S. operators that it had interested a U. S. manufacturer in building the ship and attempted once more to interest the airlines in ordering the ship. Boeing has been speaking with a number of airlines and has sent a group to the Miami area for talks with National Airlines and other operators.

What effect the decision by Trans World Airlines and Eastern to buy Martin 404's will have on this program is still speculative but United Air Lines has yet to make a decision on new twin-engine equipment and there is yet a sizeable market among the smaller lines.

The Scandia closely resembles the Douglas DC-3 except for its tricycle landing gear. It has a gross weight of 32,408 pounds and maximum landing weight of 31,967. Wing span of the Scandia is 91 feet, 10 inches, length 69 feet, 11 inches and height 24 feet, inches.

The Scandia is powered by Pratt & Whitney's new R-2180 engine rated 1650 bhp for take-off dry or with water injection rated at 1800 bhp. At take-off gross weight of 32,408 pounds, take-off distance is 1935 feet, using water injection. Rate of climb at METO power is 1475 ft./min. and cruising speed is 10,000 feet altitude and 940 horsepower is 250 mph.



# New Powerplants Spur C-99 Design Studies As Air Coach

By RICHARD G. WORCESTER

Consolidated Vultee has been making some design studies for a new adaptation of the existing XC-99 to carry transcontinental mail and for a 400-seat transport which would allow a carrier to offer coast-to-coast fares comparable with bus rates. The proposed air coach version has been mentioned before but the possibilities of the Allison T-40 coupled turbine call for some revision of earlier estimates.

The basic B-36 swept wing and the standard tail unit can now be judged as well tried under a wide range of operating conditions and the essence of a transport version is to keep these acceptable aerodynamic and handling characteristics with a modified fuselage and use powerplants of considerably increased output.

The Pratt and Whitney compounded variant of the Wasp Major holds promise of increasing the efficiency of both the B-36 and any civil counterparts. But early certification of the Allison T-40 turbine-groups of 5,500 equivalent horsepower each would in effect create an entirely different aircraft.

The advantages in take-off, climb, service ceiling, cruising speed and asymmetric power performance would give the aircraft every chance of meeting the ICAO performance and operational requirements. It should be remembered that these international standards were first laid down for designs of about 10,000 lbs. to 150,000 lbs. gross and some of the rulings may prove unrealistic when applied in detail to much larger sizes. Flight testing with the XC-99 and the Bristol Brabazon might already be sufficient to re-draw the blueprint of safety for the 100-ton transport.

## Military Potential

If civil aircraft of this size were made, it would be impossible to ignore their military potential. Four of the aircraft currently proposed for transcontinental mail and others for air coach service would represent a great step forward in the nation's economy as a result of the overnight parcel and letter delivery and would open a new vista of rapid cheap travel. But the same fleet of aircraft for mail delivery could carry one-tenth of a division in a single trip. It is the same argument as looking upon the "America" and "Queen Mary" as weapons of great value. Transport in any shape or form is a munition of war.

The value of the project turns largely on the question of powerplants. The Allison T-40 could not run properly

as a pusher because the intakes and jet exit pipes would be badly placed.

One suggestion is to keep the engines facing forward and draw off the power from the turbines by shafts aft of the turbine wheels to turn the gearboxes as pushers and keep the same propeller configuration. But a sound alternative is to use the engines as tractors and spread the contra-props along the leading edges. This proposal is not, of course, new to Convair because the

turbines are comparatively light but moving the great propellers over an arm of the whole wing chord might call for considerable further research which is the one thing to avoid in the transport adaptation.

However, taking the optimistic view of these changes to the c.g., it might be that the shifting of weights will be only, as it were, a case of moving the furniture about until the room is right.

The changes outlined are minor compared with the cost of about \$40,000,000 for building a transport from scratch. And so, owing to the high cost of aircraft development, it seems most unlikely that under what we call normal economic conditions it will ever be feasible to construct a 300,000-lb. transport. But if the vast Convair jigs at the Fort Worth plant were used in this way

the unit cost of, say \$5,000,000, would be only a fraction of that involved in initiating a design.

From the pilot's point of view the increased gross weight could raise further problems of control at take-off and at low speeds.

The most adverse characteristic of the Turbo C-99 and the XC-99 in its latest form is undoubtedly the small ground angle of about 9 degrees. As it stands this is so small that in a tail-down landing the rear fuselage would strike the ground and a flapless landing at anything like full load would appear to be impossible without scraping the undersurface. Increasing the wing angle of attack from its present figure of 5 to 7 or 8 degrees might ease this, but could introduce more problems than it solves. The good flying features are all inherited from those of the B-36 and result in an aircraft which pilots can handle.

## Engine Data for C-99

Type	R-4360-19	R-4360-VDT	T-40
Maker	Pratt and Whitney	Pratt and Allison	Allison
Output	3,500 h.p.	4,000 h.p.	5,500 e.h.p.
Weight (dry)	3,889 lb.	3,720 lb.	2,618 lb.
Propeller	3 bladed	3 bladed	2 x 3 bladed CR
Diameter	19 feet	19 feet	15-16 feet
Maker	Curtiss	Curtiss	Aeroproducts

B-36-C with R-4360 VDT engines was intended to use tractor propellers until, according to reliable reports, the idea was dropped.

## Tractor Disadvantages

The two disadvantages of the tractor layout are, first, it would radically alter the slipstream effect and if the airflow over the wings and stabilizer were altered, any adverse handling characteristics might prolong the flight testing period.

Secondly, the substantial change in center of gravity would not dovetail into the idea behind the wing planform. The

## Commercial Version C-99 and Turbo C-99

### Dimensions

Span	230 feet
Length	182.5 feet
Height	57.5 feet
Loading doors	12 ft. x 13 ft
Truck headspace under tail	15.25 feet
Loading ramp angle	15 degrees (rear)
Loading ramp angle	17.2 deg. (front)
Cabin height, lower	143 inches
Cabin height, upper	18.5 inches
Cabin width, lower	144 inches
Cabin width upper	128 inches
Mail space, volume	21,715 cu. ft. above cargo floors

### Weights

Pratt and Whitney version—	
Gross weight	265,000 lb.
Payload	100,000 lb.
Payload over reduced range	116,000 lb.

Allison version—	
Gross weight	300,000 lb.
Payload	120,000 lb.
Payload over reduced range	130,000 lb.

### Performance

Pratt and Whitney version—	
Max. speed	300 mph
Range	8,100 miles
Service ceiling	30,000 feet
Allison version—	
Max. speed	400 mph
Range	6,500 miles
Service ceiling	40,000 feet

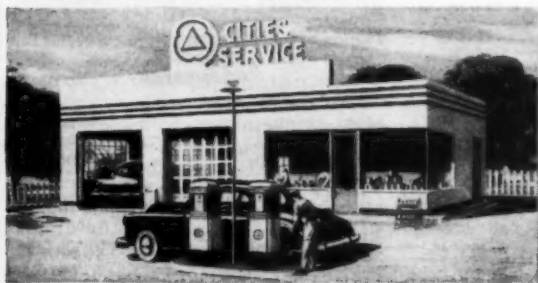
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**Martin 4-0-4's**—These views are artist drawings of the new Martin 4-0-4's ordered by Eastern Air Lines and Trans World Airline. EAL and TWA on March 7 jointly announced the purchase of 65 of the pressurized twin-engine 4-0-4's. (35 for EAL, 30 for TWA), confirming the disclosure made in *AMERICAN AVIATION*, March 1. Total value of the 65 plane order is \$35,000,000. The Martin 4-0-4 has a fuselage 5 feet

longer than the original Martin 2-0-2, a gross weight of 43,000 pounds, top cruising air speed of 312 mph. It is powered by an improved model of the P&W R-2800, the CB16, which has greater performance at altitude and under adverse temperature conditions. Delivery of the initial 4-0-4's is scheduled for spring of 1951. Meanwhile TWA is expected to accept a lease deal on 12 Martin 2-0-2's which would be ready for delivery in four or five months.

## P & W J-48 Turbo-Wasp

The power ratings of American jet engines are climbing upward on a sharp curve. Although only two years ago the thrust available in the most powerful aircraft turbines was about 4,000 pounds, engines capable of producing twice that thrust are now either flying in experimental aircraft or are in the final stages of laboratory test. Other engines, with thrust ratings in the neighborhood of 10,000 pounds, are already undergoing preliminary test, and engine designs on the drawing board run up as high as 17,000 pounds.

This rapid power development has not been too evident, largely because the veil of military security has covered the new engine developments. The Navy has now, however, permitted the disclosure of certain basic data on one of its more promising engines, the Pratt & Whitney J-48 Turbo-Wasp.

The J-48 is a centrifugal flow turbine, the development of which evolved from the basic British Rolls-Royce Nene design. Pratt & Whitney took the Nene design under license, put it into production for the Navy with the designation J-42, then developed the design further, into what is now the J-48. The British also continued the Nene development and came up with the Rolls-Royce Tay, a counterpart of the J-48.

Without water injection, the J-48 turns out 6,250 pounds of thrust, the highest basic power rating yet announced by either the Air Force or the Navy. Injecting water, which is immediately vaporized, produces added thrust for take-off. The J-48's real power, however, comes from an afterburning system which burns the unused air in the exhaust stream, greatly augmenting the engine's basic thrust. With a 10-foot afterburner, for instance, the J-48 develops over 8,000 lbs. thrust.

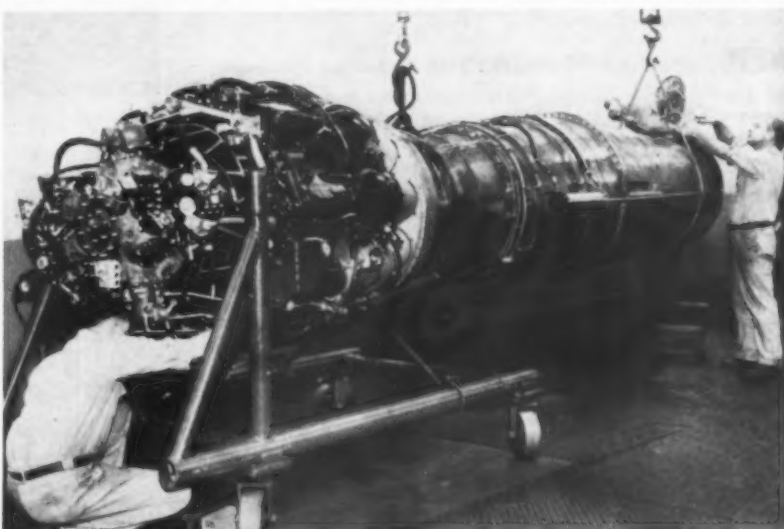
The J-48 employs two different afterburners: the 10-foot model mentioned

above and a five and one-half foot model. The smaller afterburner is for use in airplanes already designed which can not accommodate the 10-footer, such as the Navy's Grumman F9F-5 Panther, a production airplane which will be J-48-powered. The 10-foot afterburner will be used in the Air Force's North American YF-93A, a larger plane. The basic engine is eight feet, nine inches long, so that the power plant installation in the YF-93A will be almost 19 feet, while even the smaller Panther will have more than 14 feet of power plant.

Despite the great increase in thrust over the earlier J-42 model (about 25%), Pratt & Whitney made no appreciable increase of dimensions. The J-48's

overall diameter is only a half inch more than that of the J-42, and it is only three and one-half inches longer. This slight increase permits interchangeability of the two engines; thus, the Navy, if it desires, may later "soup-up" its earlier Panthers by substituting the new engine. The added thrust was gained by redesigning the impeller and turbine blades, enabling the J-48 to consume 30% more air than the J-42.

The J-48 has completed more than 20 successful flights in the F9F-5 and the YF-93A and has undergone more than 1,800 hours of ground test work. Semi-production engines are now being turned out and full-scale production will be started this summer. The Navy put the engine into production last November with a \$10,368,600 contract for 264 engines, and followed with another production order almost as large recently.



PRATT & WHITNEY engineers put the finishing touches to P & W's new J-48 jet engine, which, with a thrust rating of more than 8,000 pounds with afterburner, is the most powerful American aircraft engine flying today. The engine itself extends only as far as the left-hand hoist-hook; the remainder of the installation is a 10-foot afterburner which adds in the neighborhood of 2,000 pounds thrust to the engine's basic power.





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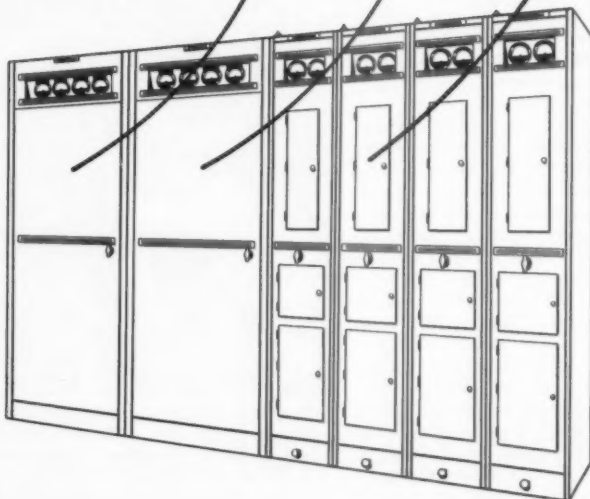
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# Rural Lightplane Use Boosts Ownership Ratio in West

By B. J. WARD

The lightplane business is moving westward. There is a definite trend toward shifting of aircraft ownership away from the heavily populated areas of the eastern United States into farming and ranching areas, according to a new study, "Geographic Aspects of the Civil Aircraft Market," just completed by the Civil Aeronautics Administration.

Utility is the motivating force behind the shift. More than 1,800 planes were used in crop-dusting alone last year. The number of aircraft used in spreading fertilizer increased from 51 to 768, a rise of 1,400%, according to CAA Administrator D. W. Rentzel.

This increase in the agricultural use of aircraft is reflected in the CAA study, which shows the location of the 92,658 personal aircraft in the United States as of July 1, 1949. From a numerical total of planes alone, without relation to population, the largest numbers of planes are concentrated within certain large states: California, Texas, Illinois, New York, Michigan, Ohio, Pennsylvania, Kansas, Indiana and Florida in that order. These states total 47,452 aircraft or 51% of the national total.

But, viewing aircraft registration in

relation to population, aircraft ownership per capita is lowest on the eastern seaboard and in the southern states east of the Mississippi River. Moving westward, aircraft ownership per unit of population gradually increases, reaching a peak in the mountain states and only declining slightly on the Pacific Coast.

## Nevada Leads in Ratio

On an average, there are 6.3 registered aircraft for each 10,000 persons in the United States. Ownership is more than twice as great in the mountain states which have an average of 14.5 aircraft per 10,000 people. On the other hand, in heavily populated New England, only 3.7 planes are registered per 10,000 people and this average drops to 3.5 planes in the Middle Atlantic States and to 3.3 planes in the East South Central States.

Nevada has more planes per capita than any other state with 27.9 airplanes for each 10,000 people. Then follow North Dakota, Montana, Wyoming, Arizona, Idaho, South Dakota and Nebraska.

This inverse proportion of registered aircraft to the population of a region involves several other factors. The percentage of contact flying weather in a

region also appears to directly affect the concentration of aircraft ownership. With very few exceptions, those states with the largest percentage of contact flying weather also have the highest per capita number of registered aircraft.

This is true of the mountain states, the West North Central states and the Pacific states. Of the mountain states, Utah ranks at the bottom both in contact flying weather and in aircraft registration. New England and the Middle Atlantic states are near the bottom of the list both in per capita aircraft holdings and in contact flying weather, while Florida appears to be an excellent example of the stimulating effect of good weather.

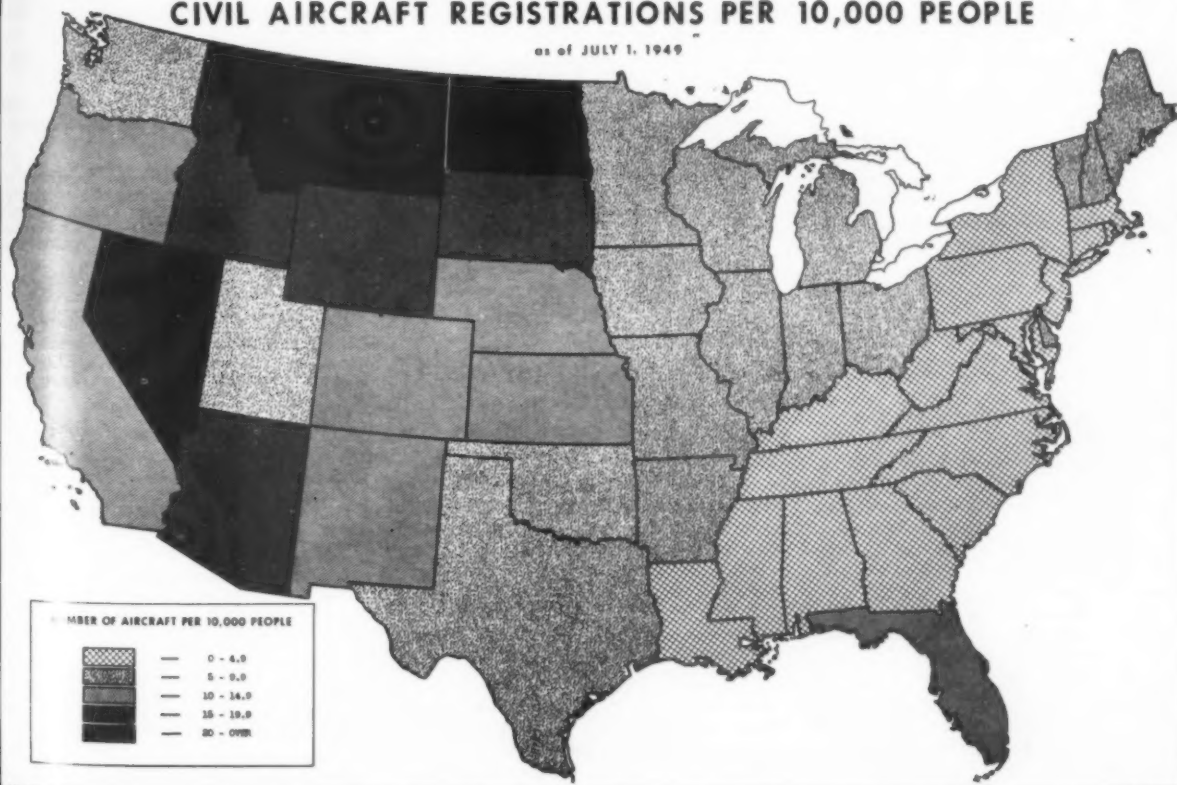
## Income Comparison

Another factor which the CAA study considers important is that of per capita income. It shows that Nevada ranks first in per capita aircraft holdings and first in per capita income. However, New York ranks second in per capita income and 46 in per capita registration and Connecticut ranks fourth in per capita income and 41 in registered aircraft. The relationship here appears questionable.

The number and availability of airports in a region is closely linked with the per capita aircraft holdings. The populous areas of the United States, where there exists the greatest need for convenient landing fields, actually have the smallest number of airports relative to their populations. Connecticut has only 1.8 airports per 100,000 per-

## CIVIL AIRCRAFT REGISTRATIONS PER 10,000 PEOPLE

as of JULY 1, 1949





**More Planes**—American Airlines will add eleven Douglas DC-6B's, similar to the one shown in this artist's sketch, to its present fleet of 50 standard DC-6's starting in the spring of 1951. The ships and spare parts represent an

investment of about \$13,000,000. The DC-6B has a longer fuselage, 1,200 more engine horsepower and higher fuel capacity than the DC-6. The extra fuselage length will be used for a special cargo hold rather than additional seats.

sons and New York and New Jersey have only 2.1 airports per 100,000 persons. But Nevada has 35.5 airports per 100,000 persons and in none of the mountain states does the average number of airports fall below 8.5 airports per 100,000 persons.

The advantage of farming and ranching states, that the owner can use his own fields as an airport increases the usefulness of aircraft and gives the rural owner an advantage over aircraft owners who live in populous areas where land values are high.

### Rural Areas Lead

Even within a state there seems to be an inverse proportion between population and aircraft registrations. In New England there are four times as many aircraft per capita in the rural counties as in metropolitan counties of 50,000 or more people, and counties with cities of 25,000 to 50,000 people and 10,000 to 25,000 people have more than twice the number of aircraft as the larger counties.

In the United States as a whole, the counties containing cities with from 10,000 to 50,000 people outrank the more heavily populated counties in all cases except in the southern states. In the south, the per capita aircraft ownership is heaviest in the metropolitan counties and probably reflects the low average income in rural areas.

In analyzing these figures, it should be remembered that flight schools usually are located in and around urban areas and this fact would tend to distort the metropolitan-rural relationship above in favor of the metropolitan areas.

The study points out that while total aircraft registrations were declining from 1948 to 1949, rural registrations throughout the United States rose at a fairly rapid rate. In rural counties the per capita aircraft holdings were up 12% on the average during this period. On the other hand, aircraft ownership in metropolitan areas decreased some 6%,

while holdings in counties with cities of 10,000 to 50,000 people just managed to hold their own.

The CAA study concludes that, since the present lightplane finds its best market in small cities and rural areas, by its very nature it is a saleable product for only a portion of the potential market.

Approximately 60% of the population of the United States today lives in metropolitan centers and counties with 25,000 or more people and "any substantial penetration of the potential market, both urban and rural, would appear to lie in the design and production of a really new aircraft. The exact specifications of such a plane are, of course, difficult to define. It seems clear, however, that if the personal plane is to become a significant medium of transportation, it must incorporate the kind of utility which will make it useful to the average man in his day-to-day routine, especially in the urbanized areas where our population is centered."

### CAA, Welsbach Agreement Ends Royalty Dispute

The "stop order" on Federal participation in the cost of high intensity runway lights under the Federal Airport Act, issued by the Civil Aeronautics Administration last May, was lifted March 1 after CAA had reached an agreement with the Welsbach Corporation and Bartow Beacons, Inc., regarding payment of royalty fees on lighting installations coming under the Bartow patents held by Welsbach.

Welsbach, which originally had requested a royalty fee of 80c a runway foot, agreed to reduce the fee to 26c a runway foot. The agreement was facilitated by a ruling of the Comptroller General that the Civil Aeronautics Ad-

ministrator might properly recognize fair and reasonable royalty fees as an allowable project cost in making airport grant offers under the Federal Airport Act.

Under the agreement, high intensity runway lights are defined as those emitting a light of more than 10,000 candlepower without color correction.

### 1949 Financial Reports

Reports in the past few weeks indicate that the scheduled airlines in 1949 had the most successful year since the war. Published reports predict a \$20,000,000 profit for the year.

Figures from company news releases and other sources showed these financial results for last year:

American Airlines reported a profit of \$6,511,237, after Federal income taxes of \$1,800,000, more than half of which were absorbed by a carry-forward tax credit. The company had a net loss of \$2,893,871 in 1948. Its total revenues for last year were \$103,205,873, highest in the company's history, while expenses totaled \$96,694,636.

United Air Lines was reported by "financial sources close to the management" to have earned a net income of approximately \$2,500,000 last year, as compared with a net loss of \$1,070,358 the year before.

Northwest Airlines finished the year with a net profit of \$1,235,405, according to unaudited company figures. This compared with a net loss of \$787,474 in 1948. The 1949 revenues of \$40,479,981 were highest in NWA's history and were more than \$5,000,000 above those for 1948 and nearly \$14,000,000 greater than 1947 revenues.

Western Air Lines had a 1949 net profit of approximately \$440,000 after taxes, equal to 84c per share of outstanding capital stock, compared with earnings of 26c a share in 1948, according to preliminary unaudited figures. A profit was made in every month of the year except January and February, and there was a profit of \$90,000 in the usually unprofitable fourth quarter. A gain in working capital also was reported.

Capital Airlines, according to information from a reliable source, earned a net of approximately \$1,000,000 in 1949.

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of corrosion, and (c) lower cleaning costs as compared to previous methods. At La Guardia Field alone, American Airlines washed over 3600 airplanes with TEN-TEN in a six months period.

TEN-TEN is one of a group of WHIZ chemical products that save time and money in aviation maintenance (conforms to Air Force Spec. 20015-E.) You can get WHIZ products and full information from your local WHIZ aircraft supply house or by writing direct. Let WHIZ modern chemicals start working for you!

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# AF-Navy \$7 Million Radio Order Starts Move to UHF

By WILLIAM D. PERREAULT

In the first coordinated move toward equipping all military aircraft with ultra-high frequency communications equipment, the military services have placed a joint order for over 4,000 airborne transceivers.

The contract, representing over \$7 million in new orders, went to the Collins Radio Co., low bidder in a price competition among three prominent radio manufacturers.

This brings to a head the move by the services to the ultra-high frequency band which was suggested prior to the war and which has been in a constant state of development since that time. The move is expected to be complete by the start of 1953 with an estimated transition cost of about \$117 million. This is the estimate presented to Congress last year in a \$22 million appropriations request to cover fiscal 1950's contracts.

Actually the services predict, on the basis of the Collins contract, that the ultimate cost of the program may be sharply reduced and the transition time cut. The AN/ARC-27 transceiver, a unit which serves both as a transmitter and receiver, was the result of one of six development contracts let by the services at a total cost of \$3,400,000.

Based on the second lowest bid in the recent competition, the Collins contract will save the government about \$3,000,000 in this fiscal year and represents a savings of about \$4,500,000 over the highest of the three bids. The services cite these savings as justification for duplication of development work.

The Navy and Air Force have found it necessary to move from the medium- and high-frequency communications bands to have available the hundreds of channels required in joint operations of all types of ship, shore and aircraft units in military emergencies. With civil operations already committed to the VHF operations, there simply has not been enough room left to meet these military needs.

## 300-300,000 MC

The very-high frequency band, now in widespread use, extends from 30,000 kilocycles to 300 megacycles. The ultra-high frequency band, to be used for some of the electronic needs of RTCA's target system of air navigation and traffic control, extends from 300 megacycles to 300,000 megacycles.

In addition to the apparently wider range of the UHF band, engineers find that it is possible to use less spacing between channels in the UHF band. The present practical minimum of 100 KC separation in VHF communications bands is a critical limiting factor.

The problems associated with a move into the ultra-high frequency band for communications have not all been settled but there are indications of improvements which make the move promising, even though it is primarily dictated by more practical present day requirements. Up to a given point, equipment for use in the UHF's can be built smaller than equivalent VHF equipment.

The present VHF designs provide a limited number of communications channels, usually 10, which can be selected by the pilot. To move the

equipment into another frequency band calls for mechanical replacing of the crystals. The AN/ARC-27 which Collins developed will provide over 1,000 quick-shift UHF channels.

## Compact and Light

UHF equipment, even at this early stage of development, shows signs of being lighter, more compact equipment which will be suitable for the space-cramped jet fighter planes. The AN/ARC-27 weighs about 85 pounds and occupies 2 cubic feet. A separate fixed-tuned guard receiver channel is provided for emergency use and calling, and is entirely independent of the channel selected on the main transceiver.

Propagation in the UHF band is not as desirable as in the VHF frequencies but some of these propagation problems are being solved. Antennae will be considerably smaller for this equipment but considerable research in this field will be required before antennae can be flush mounted in the manner of recent VHF developments.

No final solution has been reached as to how military and civil needs will be integrated. Military aircraft utilizing UHF communications sets will not be able to keep in direct contact with commercial VHF-equipped airports without additional provisions.

Present indications are that the towers will be supplied with UHF receiving equipment, purchased by the services, so that they can receive messages from the military ships. The military aircraft would in turn be equipped with VHF receivers. In this manner the military pilot, with a minimum of additional equipment, would be able to transmit on his standard UHF equipment and receive on his supplementary VHF receiver.

## Airline Use Remote

Some thought has been given in private circles to providing a communications band in the UHF frequencies for the airlines. This would minimize the natural problems of integrating military and commercial aircraft operations in a national emergency. It would also provide much more reasonable prices for the civil units since they would be part of a heavy production line of military units.

Although such space might be made available for future use, there is little likelihood that the airlines would utilize these frequencies since the cost of such a change is prohibitive and the airlines are just completing the move from the high to very high frequencies. While this will probably come about as a natural development in 10 year's time, present equipment will then have been written off and replacement requirements will make it a more natural switch.

Indications are that it will be at least one year before the recently ordered



**Mobile Test Shop**—This is the mobile aircraft testing laboratory designed by John Marrotte, supervisor of instrument overhaul with Durham Aircraft Service. The laboratory, built by DAS employees, has been placed in service at N. Y. International Airport. In its 8 x 30-foot interior, the unit has all the required equipment and parts for repair and testing of pressure, gyro, mechanical and electrical instruments. It is staffed by two DAS technicians and performs work on a fixed rate charge to anyone requiring the service. Durham plans on building additional units for other airport operations.

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**Honors Recipients**—Recipients of gold and silver medals for outstanding service to the Civil Aeronautics Administration, the Department of Commerce and the nation at recent ceremonies in Washington were these seven employees of the CAA. From left, standing: Michael G. Lucanish, D'Arcy Harvey, E. Forest Critchlow and Ralph S. White, who received silver medals; and left to right, seated: Lloyd H. Simson, gold medal; Mrs. Ollie K. Carson and Miss Katherine Smith, silver medals; and John H. Geisse, gold medal. Also awarded a gold medal was a former CAA employee, H. Walker Percy, of Memphis.

production units are available for installation in regular service, although limited numbers will be available prior to that time.

At least one of the earlier development and trial production orders will be switched to the UHF AN/ARC-27 unit in the near future to insure a dual source of supply. Contracts placed for future UHF equipment will include some stipulation insuring that more than one major communications equipment manufacturer takes part in the production.

Robert Von Tempsky, dir., 25 shares; G. P. Wilcox, dir., 25 shares; Robert Williams, dir., 25 shares; George S. Wong, dir., 25 shares.

#### Monarch Air Lines, Inc.

H. S. Darr, pres. and dir., no salary and 328 shares common; R. M. Wilson, exec. v. p. and dir., \$9,000, and 3,617 shares; F. W. Bonfils, dir., no salary, 1,515 shares; E. N. Levin, sec'y and dir., no salary, one share; D. T. Myers, ass't sec'y, \$2,230 (up \$195), and 34 shares; F. Belser, dir., no salary, one share; C. A. Myhre, treas., \$7,200 salary (up \$900) and none.

### People in the News

**Frank P. Douglass**, member and former chairman of the National Media- tion Board, has resigned to enter the Democratic primary for the governorship of Oklahoma. He has been a member of NMB since 1944.

**Eugene Sibley** has been promoted from chief of the Communications Division to the newly created position of chief, ICAO Division, International Region. Sibley's service in Federal aviation agencies began in 1919 with the Post Office Department's air mail division. His work for the past 20 years has been principally in the planning, establishment and operation of airways.

**William D. Strohmeier** has been named a vice president of Davis-Parsons, Inc., New York advertising firm. Strohmeier Associates has been merged with the Davis-Parsons group.

**James S. Rice**, of CAB's Bureau of Safety Regulation, has been appointed technical coordinator in the west coast office of the Aircraft Industries Association in Los Angeles, effective March 15. He succeeds **J. M. Richards**, who resigned recently.

### 1949 Schedule E Reports

Schedule E reports showing calendar 1949 salaries, other compensation, and year-end stockholdings of officers and directors of certificated carriers have been filed with CAB by the following airlines:

#### Pioneer Air Lines, Inc.

Robert J. Smith, pres. and dir., \$12,000 salary and 26,818 shares of common; Harold B. Seifert, v. p. and dir., \$10,200 (up 1,200), and 264 shares; H. L. Lawrence, v. p., \$7,500 (up 1,500), and 15 shares; Eugene W. Bailey, sec'y-treas., \$8,400 (up 1,200), and 956; W. F. Long, chm. Bd.-dir., no salary and 27,291 shares of common; Gene Howe, dir., 100 shares; Charles B. White, dir., 200 shares; Raymond Pearson, dir., 1,500 shares; Price Campbell, dir., 700 shares; J. Wesley Hickman, dir., 823 shares.

#### Hawaiian Airlines, Ltd.

Stanley C. Kennedy, pres. and dir., \$27,500 salary (up 13,100), and 3,948 shares of common; Alexander Smith, v. p. and sec'y, \$14,000, and 800 shares; Ford Studebaker, v. p., \$14,000, and 800 shares; David Watson, treas., \$14,000, and 650 shares; James M. Greenwell, dir., no salary and 25 shares; P. K. McLean, dir., no salary and no shares; J. E. Russell, dir., no salary and no shares; Wilfred C. Teukiyama, dir., no salary and 25 shares; George H. Vicars, Jr., dir., 25 shares; Herman Von Holt, dir., 25 shares;



A lot of passenger remarks floating around these days about rides in "vibrating old ships pressed into rush service," may be causing grey hairs in the industry, but the situation does show that the all-important passenger has developed a "deep-seated" sixth sense where flight comfort is concerned! A quick way to get to the bottom of this problem is to check a prime source of vibration at engine and accessory mountings this easy, economical way... specify Moulton Vibration Mount Kits, or order individual parts as required... a correct step towards increased passenger and crew comfort! Only top quality, new parts for DC-3, C-47, available for immediate shipment! Order Today!



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# Airlines Protest Board's Proposed Charter Limitation

By WILLIAM V. HENZEY

The Civil Aeronautics Board may, in the next few months, tighten the reins on charter operations of the certificated carriers, but it will be over the strong opposition of the scheduled airline industry which almost unanimously protested the Board's initial draft regulation last week.

At issue is the first charter regulation ever proposed by CAB and there were many among the 16 companies which commented on the proposal who doubt not only the legality of specific provisions, but the legality of any regulation which would curtail charters.

It all started early in January when the Board issued its well-known Draft Release 42, proposing to add a new Part 207 to the Economic Regulations covering the performance of charter trips and special services by certificated airlines.

It was termed, by CAB, as the general framework under which charter trips and special services may be encouraged and directed and wasteful competitive practices therein curtailed, so as to fulfill the basic policy of the Civil Aeronautics Act.

## 5% Limit Proposed

Of particular significance was the proposed limitation of charter services for any calendar quarter to 5% of the air transportation (on an airplane-mile basis) performed by a carrier during the preceding calendar quarter. This meant, of course, if a carrier performed 500,000 plane-miles of operations during the period January through March, it would be limited to a maximum of 5,000 miles of charter operations during the subsequent months of April through June.

Also, the proposed regulation would prohibit any carrier from operating an off-line charter to a foreign point or area for which another U. S. carrier is certificated, unless the latter consented in writing, or CAB granted specific authority "upon a finding that the public interest so required." These were the two points subject to most opposition by the commenting parties.

That the Board has the power to promulgate such a regulation, however, is clear under Section 401(f) of the Act which provides: "Any air carrier may make charter trips or perform any other special service, without regard to the points named in its certificate, under regulations prescribed by the Board."

How restrictive it can get with such a regulation, though, was a point challenged by practically all. Eastern Air Lines' attorneys said "it is extremely doubtful whether the Board has the

legal power to adopt regulations which would prohibit the operations of charter and other special services which are specifically authorized by statute."

United Air Lines too, while recognizing CAB's power to adopt a charter regulation, pointed out that the Board may not adopt regulations in derogation of the operating authority granted by the statute.

## Ask Delay or Hearing

Actually, 10 of the 16 commenting parties asked CAB to refrain from promulgating the regulation at this time, or in the alternative, to hold public hearings and oral argument prior to promulgation. Five others sought to have specific provisions changed, while only one, Trans World Airline, thought CAB's step not restrictive enough.

Arguments advanced in opposition to the proposed 5% quantitative limitation were, in most cases, peculiar to the type of airline stating them. The feeders, for example, and several middle-size trunk-lines complained that it would be unfair and discriminatory to them since 5% of their plane-mile operations is so much less than a similar percentage of the operations of larger lines, although the relation of their charter operations to those of the large lines is much closer.

Views of the all-cargo industry were expressed by Slick Airways which pointed out that it is wholly unfair to permit a passenger airline to use passenger plane-miles as a basis for authority to conduct freight charter trips.

Arguing that the 5% limitation would impair development, Slick requested that the cargo limit for passenger-cargo and all-cargo lines alike be 10% of the freight plane-miles handled in all-cargo planes.

## TWA Suggests 2%

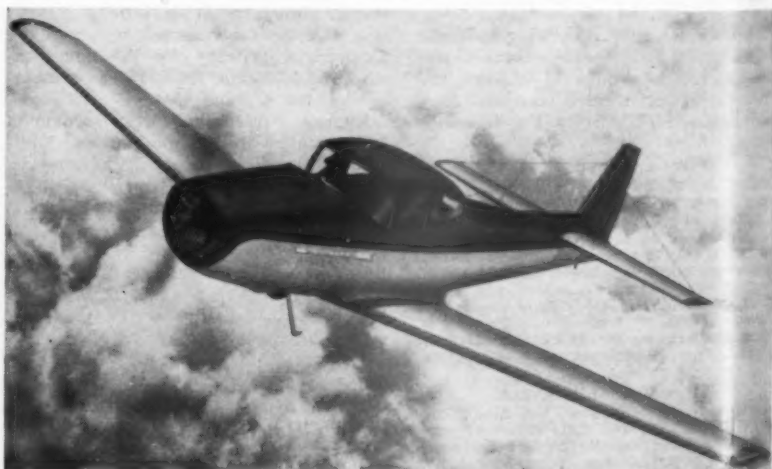
United Air Lines claimed that if a limitation need be imposed at all, it be more nearly related to the problem of frequency of service between fixed points. Only TWA, with one eye on its 1950 Rome business and the other on Pan American, believed the limitation too high. 5% of the total miles operated by some carriers in a calendar quarter, TWA said, would be equivalent to hundreds of transcontinental trips and would in no way restrict the charter operations of those carriers. A 2% limit would be better, they added.

Pan American, however, had its arguments in opposition to the Board's proposal. They said it is undesirable to tie the hands of U. S. certificated carriers before the charter operations of non-scheduled and foreign flag air carriers are brought thoroughly under control.

Under the draft regulation, PAA could not, for example, operate a charter trip to Anchorage without obtaining Northwest Airlines' consent or a special dispensation from CAB, although all Alaskan Air Carriers and non-scheduled airlines are free to do so.

Whether or not the lines will be granted the opportunity of presenting additional evidence in support of their comments is not yet known. The Board may, under present rules of practice, promulgate the regulation on the basis of existing evidence.

What effect it would have immediately is speculative, but two lines, Western and Capital, are rapidly approaching the 5% limit and could, conceivably, exceed that limit this year.



**New Navion**—260 hp Lycoming engine gives the 1950 Ryan Navion a cruising speed of 170 mph, compared with 155 for the 1949 model. Increased power has boosted rate of climb to 1,250 feet per minute and service ceiling to 18,000 feet. Increased cabin ventilation, added instruments and manually-controlled cowl flaps have been added. First deliveries are scheduled for early April.

## Aviation Calendar

March 24—Institute of the Aeronautical Sciences fifth annual Flight Propulsion Meeting, Carter Hotel, Cleveland, O.

March 30-31—Sixth annual Helicopter Forum (sponsored by American Helicopter Society and Institute of the Aeronautical Sciences), Ben Franklin Hotel, Philadelphia, Pa.

March 31—Greater New York Safety Council conference on air travel safety, Hotel Statler, New York, N. Y.

April 4-6—ATA annual Engineering and Maintenance, Hotel Continental, Kansas City, Mo.

April 10-14—American Society of Tool Engineers exposition, Convention Hall, Philadelphia, Pa.

April 12-13—Aviation and Gas Turbine Division, American Society of Mechanical Engineers, meeting, Statler Hotel, Washington, D. C.

April 16-20—American Association of Airport Executives annual meeting, Nell House Hotel, Columbus, O.

April 17-19—SAE aeronautic meeting and aircraft engineering display, Hotel Statler, New York, N. Y.

April 22—Personal aircraft operation and maintenance conference, Municipal Airport, Reading, Pa.

April 24-26—Airport Operators Council third annual meeting, Hotel Carter, Cleveland, O.

May 19-20—Institute of the Aeronautical Sciences 7th annual Personal Aircraft meeting, Lassen Hotel, Wichita, Kans.

June 1-3—Aviation Writers Association convention, Montreal, Que.

June 2-11—7th annual Michigan Aviation Week (sponsored by Aero Club of Mich.).

June 4-9—SAE summer meeting, French Lick Springs Hotel, French Lick, Ind.

June 10-13—National Aeronautic Association 28th annual convention, Hotel Statler, St. Louis, Mo.

June 11-15—Ninety-Nines convention, Ft. Clark Guest Ranch, Branchettsville, Texas.

June 22-23—Aviation Distributors and Manufacturers Association mid-year meeting, Edgewater Beach Hotel, Chicago, Ill.

June 26-30—American Society for Testing Materials annual meeting and exhibit of testing apparatus and equipment, Atlantic City, N. J.

July 12-14—Institute of the Aeronautical Sciences annual summer meeting, IAS Western Headquarters Bldg., Los Angeles, Calif.

July 25-30—Academy of Model Aeronautics national model airplane championship contest, Naval Air Station, Dallas, Texas.

Sept. 4-6—National Flying Farmers Association annual convention, Bemidji, Minn.

## International

March 21—ICAO African-Indian Ocean-Middle East Fixed Services meeting, Paris.

March 21—ICAO African-Indian Ocean-Middle East Frequency meeting, Paris.

Mar.-Apr.—ICAO Southeast Asia Frequency meeting, location undecided.

April 11—ICAO Caribbean regional meeting, Havana.

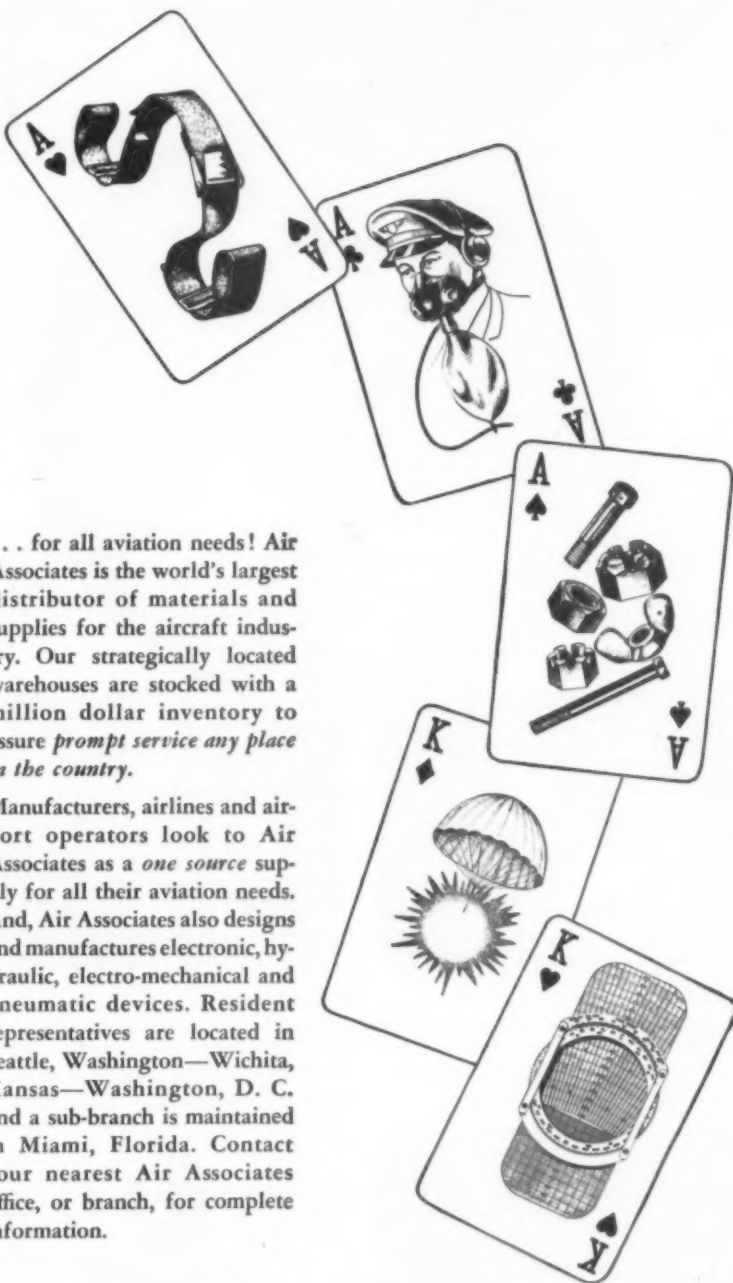
April —ICAO Caribbean-South American Atlantic Frequency meeting, Havana.

May 9—IATA Composite traffic conferences 1-2-3, Madrid, Spain.

May 9—IATA Fourth technical conference, U. S.

May 30—ICAO Legal Committee meeting, Montreal, Quebec.

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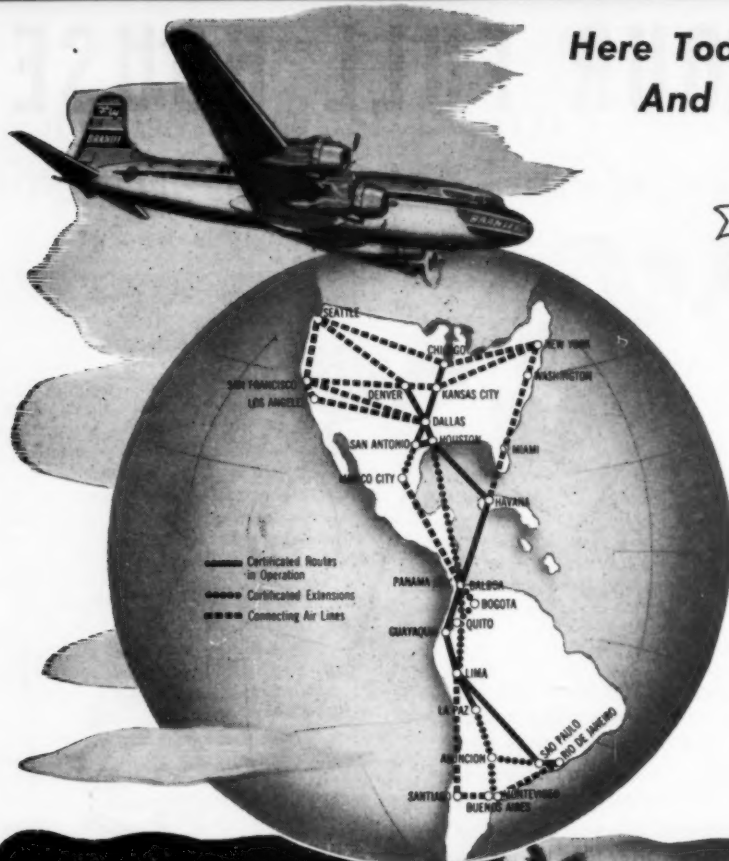
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## Interplanetary Flight

By James J. Haggerty, Jr.



**WE'VE HEARD** quite a bit of talk lately about the possibilities of space rockets and it would appear that a number of people feel that such a development is just around the corner.

However, Dr. Ralph E. Gibson of the Johns Hopkins Applied Physics Laboratory, whose views on the subject we received recently, doesn't share the popular opinion. We found the eminent scientist's views so interesting that we thought we would pass them along.

Dr. Gibson starts out, paradoxically, by stating that it is quite possible to build an interplanetary vehicle today, speaking strictly from the technological standpoint. But—the space ship would probably be the size of the Empire State Building and cost more than the combined Army, Navy and Air Force appropriations for a year.

For instance, a rocket capable of carrying a thousand pounds of payload to the moon would weigh in the vicinity of 9,000,000 pounds. Obviously, though, if you're going to go to the expense and trouble of building a space ship, you don't want one with so limited a payload. For practical purposes, the moon rocket should be able to carry a 50,000-pound payload. Such a rocket, assuming a round-trip fuel capacity, would weigh about 20,000,000 pounds. This is a fair size airplane, roughly as heavy as 55 B-36's.

### Needs 'Working Fluid'

The reason for this tremendous size is that the space ship will have to carry its own "working fluid," that is, the gas (probably hydrogen, because it is lightest) which is burned and expelled to provide thrust. Within the earth's atmosphere, a plane can draw oxygen from the air, burn it and force it out to provide motive power; such is the principle of the jet airplane. Outside the atmosphere, however, there is no working fluid to be drawn, so the space rocket must bring its own, internally. Dr. Gibson estimates that the fuel and working fluid load would constitute about 85% of the space vehicle's total size.

The popular belief seems to be that a nuclear power plant is the answer, but Dr. Gibson steps on that one. Within the earth's atmosphere, a nuclear aircraft power plant will be capable of providing extreme range, as long as it can extract a working fluid from the air. But nuclear energy by itself is not a propellant; it still needs that working fluid to provide the actual thrust. Thus, while a nuclear power plant would reduce the fuel load required to travel to the moon and back, it would not reduce the infinitely greater volume of working fluid required for the journey, which Dr. Gibson estimates as 250,000 cubic feet.

Finally, the scientist asks, why should we go to the trouble of building a space rocket? If the cost were not so prohibitive, it might be well to build one just for the furtherance of scientific knowledge, or even for mere curiosity. But since the cost will be extreme, obviously the only thing that would justify it would be national defense—and no one has yet figured out just what advantage we would gain over Russia by beating them to the moon.

**BUT IF** Dr. Gibson is somewhat pessimistic about our chances of getting to the moon, his colleagues across the sea do not share his pessimism. The British Inter-

planetary Society, organized in 1933 to "bring home to the lay public the ultimate implications to human society of the crossing of space," is going right ahead with its preparations for the moon journey. The ebullience of the society is perhaps exemplified in the blithe statement of one of its members that "Problems of boredom are not likely to arise on comparatively short journeys of a few hundred thousand miles."

One suggestion that the society makes to overcome the problems of storing sufficient working fluid is in-space refueling. Under this system, known as the "orbital technique," a satellite, or space-station would circle the earth in an orbit. A moon-bound space ship could stop at this station and pick up an extra load of working fluid, thereby reducing the required take-off (from Earth) mass. The satellite would in turn be refueled by fueling rockets fired from the earth.

### Crew Requirements

Just anyone, we learn from another member of the society, can't be a space-ship crewman, due to the extreme tension and strain of a prolonged interplanetary flight. Dr. E. T. O. Slater, M.A., M.D., F.R.C.P., who has given considerable thought to the psychological problems of space flight, says that it will be essential to pick men for the crew who have shown no previous sign of mental instability, and who have had past experience of a type to assure their reliability. This would seem to narrow the field considerably.

There are physiological problems connected with space travel, too, Dr. Slater tells us. First, of course, is the obvious one of withstanding the initial acceleration of the rocket. Dr. Slater feels that this may produce nothing more than a severe black-out, although he thinks a compromise may have to be made between the initial acceleration desired from the technological standpoint and human physiological limits. Another is the possibility of germ organisms on another planet which have never been encountered on Earth.

Two other members of the society have gone so far as to draw up plans for a lunar spacesuit. BIS members H. E. Ross and R. A. Smith point out that (a) the moon has no atmosphere and (b) great extremes of temperature prevail. Their space suit, therefore, completely encloses the wearer and has its own oxygen supply. The suit, consisting of four layers of various materials, is completely pressurized, with an air-lock located about chest-high so that objects can be passed from the inside of the suit to the outside (or vice versa) without breaking the seal.

The helmet is a rigid two-layer affair, the inner layer being made of a light metal alloy, the outer a moulding of some fracture-resisting plastic material. Since there is extreme glare on the moon (they say) a shading peak has been provided. The visor, which retracts upward, would be made of special glare-resisting glass. A 12-hour oxygen supply is carried in a tank on the space-man's back. The entire suit weighs about 150 pounds, which, the designers point out, would only be about 25 pounds moon-weight.

It is obvious from the detailed studies the BIS has made that it considers future space travel something of a certainty, although we could find no estimates of how far in the future it will come about. And while it all sounds a bit fantastic, so did the Wright Brothers.

# Production Spotlight

**AF Fund Supplement:** There are indications, in the printed hearings of Air Force testimony before the Military Subcommittee of the House Appropriations Committee, that there may be a move to increase the Air Force's fiscal 1951 procurement authorization above its Presidential recommendation level of \$1,365,000,000. The revelation by Air Force witnesses, headed by Secretary W. Stuart Symington, that the recommended amount is not sufficient to maintain a modern 48-group Air Force, drew considerable interest from committee members, and their line of questioning indicated that there might be some support for an appropriation increase.

The Air Force witnesses told the committee that, if procurement allocations are continued on the present level (\$1.2 billion in fiscal 1950), in five years the Air Force will have only 34 modern groups. In order to continue the 48-group strength, they said, the Air Force would need an additional \$200,000,000 in procurement authorization next year (fiscal 1951, which starts July 1), with gradual increases in 1952 and 1953, to a leveloff point of \$2,000,000,000 for procurement in 1954. Such a program would provide not only the regular 48 modern groups, but also 11 modern Air National Guard groups.

**1949 Plane Shipments:** Aircraft shipments for the calendar year 1949, military and civil combined, amounted to 36,541,200 airframe pounds, an increase of 4% over 1948 shipments, according to a joint report by the Bureau of the Census and the Civil Aeronautics Administration. Of the total, 29,795,400 pounds of airframe were in military deliveries. This compares to last year's total of 25,181,000 pounds.

Dollar-wise, civil aircraft shipments totaled \$158,983,224, a substantial increase over 1948's total of \$136,889,711. The year's total business for civil airframe manufacturers, including products other than airplanes and parts, amounted to \$181,786,753, which compares with 1948's figure of \$165,497,413. Military cost figures are not available.

Engine manufacturers did not fare as well. Total civil business during 1949 was \$42,277,112, which compares to 1948's \$56,140,730.

**Army Helicopter:** First production model of Sikorsky's YH-18 helicopter, also known as the S-52-2, is scheduled to come off the production line about May 1. Sikorsky has an order for four of the YH-18's, which are enlarged versions of the two-place S-52-1, for the Army Field Forces. The YH-18 or S-52-2 features two major changes from the original S-52 design: the cabin has been considerably enlarged and the engine has been relocated. Where the original S-52 had only one row of seats, the S-52-2 has two rows, with space for a pilot and two passengers, or a pilot, an attendant and two litters. The engine, instead of being located directly under the rotor hub, has been moved rearward to make room for the extra row of seats, necessitating a 30 degree angle diagonal rotor shaft.

**Production:** Boeing Airplane Co.'s Wichita Division has completed the first production model of the six-jet B-47A bomber and the plane is now being readied for first flight. . . . Fairchild Aircraft Division has delivered the first R4Q-1 (Air Force C-119) Packet to the Marine Corps at Cherry Point, N. C. . . . Convair has delivered the Air Force's first T-29 trainer. The T-29 is a Convair-Liner modified for bombardier-navigator training use. . . . North American Aviation's YF-86D, a swept-wing Sabre modified for radar installation, has been redesignated the F-95A by the Air Force, a hint that a production order may be coming.

**F-84E's Grounded:** Republic Aviation Corp.'s F-84E jet fighter bomber has been grounded by the Air Force, pending investigation of main bearing failures of the Allison J-35-A-17 jet engine which powers the plane. Only the "E" models, the latest in the series, are affected, since they alone use the -17 engine. The grounding came just as the "E's" were about to get a major operational work-out in Operation Portrex, joint Army-Navy-Air Force maneuvers in the Caribbean.

**Contracts:** Pratt & Whitney Aircraft Division of United Aircraft Corp. has received a \$9,842,226 contract from the Navy for additional production quantities of its two jet engines, the J-42P8 and J-48P6, parallel developments of the British Nene and Tay respectively. . . . United's Hamilton Standard Division also received four contracts for propellers and spares totaling \$4,961,968.

—J. J. H.

## Industry Personnel

Donald R. Morse has been appointed as controller of Wright Aeronautical Corporation. For nine years before joining the aircraft engine division of the Curtiss-Wright Corporation, he was at various times controller of three of the divisions of the Joshua Hendy Corporation with headquarters in Los Angeles.

J. F. McCarthy, formerly vice-president and treasurer of the Curtiss-Wright Corp., has been elected to the newly-created post of vice-president-finance.

Jess W. Sweetser has joined The Glenn



Sweetser

L. Martin Company in Baltimore as assistant to the president in charge of sales and contract administration. He was special Washington representative and subsequently director of public relations and advertising for the Curtiss-

Wright Corporation during the war years.

Peter J. Murphy, Jr., has been promoted from assistant secretary to secretary of Curtiss-Wright and of Wright Aeronautical Corporation.

R. J. Cowden has been appointed sales manager for engines and related products with the Lycoming Spencer Division, Avco Manufacturing Corporation. After serving with Lycoming from 1927 through 1944, Cowden handled contract and service engineering for the American Propeller Corporation for two years and later served as sales manager for the Tool and Machine Division, both Avco subsidiaries.

George E. Bounds has resigned as director of public relations for McDonnell Aircraft Corporation, and the company has reassigned the public relations department's functions to other departments. Before joining McDonnell in 1946, Bounds had served as public relations director for Chicago & Southern Air Lines for 10 years.

J. B. Haas, general traffic manager, Bendix Products division, Bendix Aviation Corporation, has been elected general chairman of the traffic committee, eastern regional division of the Aircraft Industries Association.

## Military Personnel

Maj. Gen. Victor E. Bertrandias, formerly advisor to the Air Force's special Assistant for Reserve Forces, has been named Director of Flying Safety. He was vice president and director of foreign sales of Douglas Aircraft until he resigned last August to resume active military duty.



# Pilots demand it! Instruments designed for Safety



Pilots today are demanding an independent standby power package to insure operation of their electric flight instrument group. For they know that even the finest instruments money can buy, are reduced to dangerous liabilities when faulty power renders them useless or causes them to give incorrect indications. Eclipse-Pioneer's answer is a two-component package consisting of a lightweight ENGINE DRIVEN ALTERNATOR, and a small, panel-mounted POWER FAILURE INDICATOR. Normally, the small black face of the indicator is inconspicuous in its mounting near the gyro horizon, but if conventional power becomes faulty, a fluorescent disk instantly appears—giving the pilot approximately four minutes to switch to standby power before the gyros will precess. Two alternators are available for this system; one for electric gyro flight instruments only and the other for an electric compass as well as the flight instruments. Either one is conveniently installed on the engine vacuum pump drive pad. Here is instrument insurance that pays its own premiums—another example of the thinking that has made Eclipse-Pioneer the leader in its field.

**Bendix**  
AVIATION CORPORATION

Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, New York

MARCH 15, 1950

# Capital's O&M Economies Snowball Into Major Savings

By WILLIAM D. PERREAULT

By cutting corners off indirect routings, Capital Airlines is now saving 39,474 miles flight per month. This represents about 267 flying hours per month or a saving of \$240,000 per year. This was accompanied by an improvement in service by cutting flight time on some 22 connections.

It is all part of the program which Capital's operations' department initiated in 1947 to replace dog-legged and indirect routes, previously dictated by outdated navigation requirements, with more direct routings.

In one case, the Memphis-Chattanooga route segment, the straightening saved 41 miles per trip but only one trip per day is operated on this route. In other cases, such as the Cleveland-Willow Run segment, only 10 miles were cut off each trip but Capital operates 10 trips per day in this route. The details of this program were carried out by H. J. Reid, manager of flight operations.

By "working at the smaller aspects of our operation," Jim Franklin, vice-president-operations and maintenance, and his capable staff are working wonders with the operations and maintenance departments at Capital.

## Fills Stand-by Time

Every airline is confronted with the problem of keeping station staffs at a level which will permit handling peak loads even though there are relatively long periods of inactivity.

Maintenance and operations ground crews are the most critical in this category. Yet Franklin's handling of this problem has resulted in a profitable

venture. Last year Capital had a net revenue of \$311,000 from incidental sources represented in sale of this "low-activity" time. At Sioux St. Marie, Capital handles the entire operation for Trans-Canada. This covers operations, maintenance and traffic needs for four to 10 TCA departures daily.

At Milwaukee, Capital personnel handle all ramp activities for United Air Lines, all operations and maintenance requirements of another major airline and all communications for a third. At Cleveland and Baltimore, Capital takes care of all of TWA's station needs.

In Washington, D. C., Capital's line maintenance and overhaul shops add to the operation by handling engine overhauls for Robinson Airlines, maintenance for Gulf Oil Company's airplanes, and equivalent work for transient operators. Net profit at Washington alone, from these incidental revenues, was \$20,000 per quarter last year.

## Profit from Outside Work

These activities receive very little attention, yet it's interesting to note that, while Capital's much-discussed charter flight operations showed a gross revenue of \$554,000 in 1949, contract maintenance and related work netted the company \$311,000 profit.

The profits might well be lost in handling of additional personnel required, but this is not the case. During the 1947-1949 period in which this program has been advanced, Capital's own activities increased sharply while the personnel numbers remained about constant.

In 1947 Capital had 924 mechanics and

629 ground service personnel. During that year it flew 9 million revenue ton-miles per quarter. Soon after assuming his position, Franklin cut 200 from these war-high numbers. In 1949, with 744 mechanics and 654 ground service personnel, Capital flew 12,969,000 revenue ton-miles. It might be noted that the personnel assigned to freight handling, which was in its infancy in 1947, are included in the ground service personnel numbers which show the slight increase. This increase is considerably below the apparent proportionate growth of freight as a department.

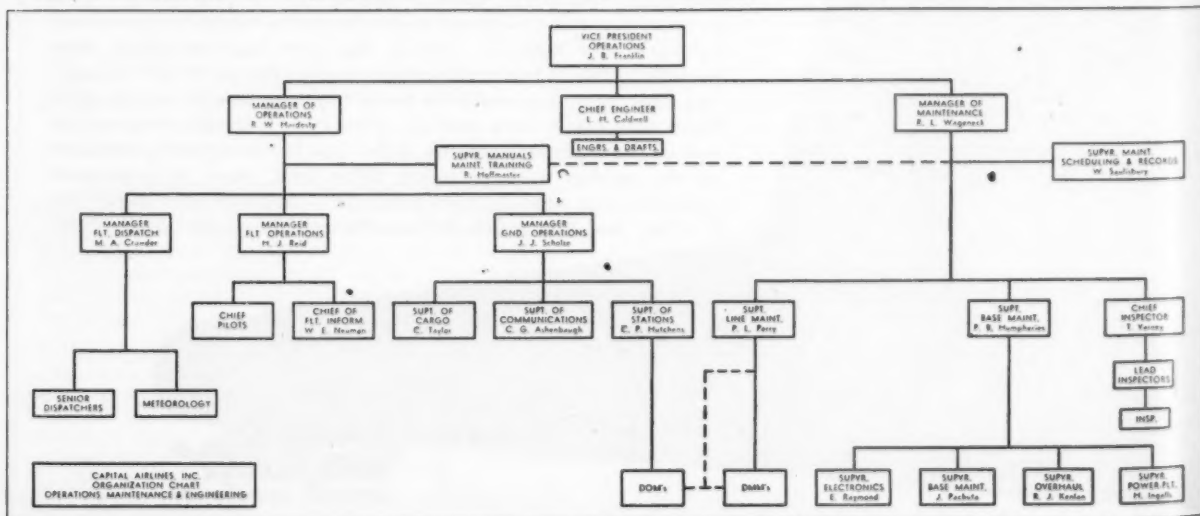
Does this mean that Capital's expenses have dropped sharply? No, the living standard of the employees has risen at such a pace that it has been a major accomplishment to maintain expenses at a reasonable comparative level. Average annual wage of the mechanics rose from \$2,864 in 1947 through \$3,469 in 1948, \$3,798 in 1949 and to a current \$4,000. During the same period ground service employee average wages advanced from \$1,950 to \$2,738.

## Uses Tight Schedule

Maintenance is making major contributions to Capital's record of earnings. Maintenance reliability has made it possible to operate airplanes on an unusually close schedule. Capital operates 19 Douglas DC-4 passenger planes, about half converted for high-density passenger service on the coach operations. The minimum number of ships required daily to keep this schedule is seventeen. This leaves one ship in the hangar for the 8,000-hour overhaul and the other for maintenance and a spare.

Yet with a schedule as tight as this, Franklin has been able to complete 99% of schedule miles during the summer of 1949 and 88% in January of this year when seasonal weather kept many planes on the ground and played havoc with interlocking schedules.

Production-wise Dick Kenlan, super-



visor of overhaul, has handled Capital's unusually high aircraft overhaul load on DC-4's without any increase in overhaul personnel. The 8,000-hour overhauls are completed in about two weeks in 8-9,000 man-hours.

### Continues To Fly

As vice president of operations, Jim Franklin doesn't sit idly by and watch these operations. In addition to his managerial and executive duties, he flies 10 to 20 hours per month, ferries equipment requiring engine changes (often on three engines), and carries out work as a check pilot on a frequent schedule. But Franklin does delegate authority and gets results. Numerous details typical of responsible positions are handled by M. S. Beyen, administrative assistant to the vice president.

When maintenance department was averaging \$30,000 per month in overtime work last year (this is better than 10% of the maintenance department regular payroll) Franklin brought in R. L. Wageneck as manager of maintenance. By skillful handling working with Base Maintenance Supervisor Paul Humphries, Wageneck reduced the overtime from a debit of \$30,000 to a credit of \$4,000 per month.

This was not accomplished at the expense of the maintenance crews. Principally it was accomplished by working with the schedules group to insure that traffic recognized the maintenance problems and integrated the needs of the two departments.

Improved schedules have also made it possible for maintenance to get the optimum number of flight hours from their engines. With CAA-approved overhaul time on their Wright R-1280 engines pegged at 1,000 hours, Capital is averaging 970 hours actual time, including unscheduled removals.

### Bunches Engine Changes

For the P&W R-2000 engine, with the same approved overhaul time but a higher rate of unscheduled removals, the company gets 940 hours actual utilization. By arranging engine changes for the Douglas DC-4 one at a time, Capital is able to avoid expensive flight testing as required with multiple engine changes. This alone saves \$15-20,000 per year in direct costs.

Capital's engine overhaul costs have been substantially reduced. Overhaul cost of the nine cylinder R-1820's averages about \$1,500 with 280 manhours of labor included. The 14-cylinder P&W R-2000 requires about 400 manhours and costs approximately \$2,500 to overhaul. For accomplishments in achieving these low overhaul costs, Howard Ingalls, supervisor of powerplant overhaul, was awarded Capital's Man of the Year Award in 1949.

The operations department proper, under R. W. Hardesty, has accomplished many improvements to lower costs and raise efficiency. It is true that pilots

## Technical News Digest

• **United Air Lines' vice president-operations**, J. A. Herlihy, has returned from a 12,000 mile tour of European countries along with his assistant, Frank Davis, and Ray Kelly, UAL's supt. of technical development. While in Britain Herlihy became the first foreign pilot to fly the de Havilland Comet, Britain's four-jet, 500-mph transport. Flying at 32,000 feet altitude, Herlihy clocked 485 mph in the Comet. Enthusiastic about the Comet, Herlihy remarked it flew "as easily as any conventional plane and without any semblance of vibration."

• **At Northwestern University**, Prof. Walter S. Huxford disclosed the development of equipment which makes it possible to talk over a beam of light. The beam can be directed like a searchlight without fear of interception by those outside of the focal range of the beam. It is naturally limited to line of sight transmission and an opaque object in the path of transmission will interrupt it.

• **Brig. Gen. D. N. Yates**, of the USAF's Air Weather Service, has been elected president of the American Meteorological Society for a two-year term. Yates has been chief of the Air Weather Service since January, 1945.

• **Bringing up to date a set of standards** originally adopted in 1930, the American Standards Association, 70 E. 45th St., New York, has published a revised edition of the American Standard Letter Symbols for Aeronautical Sciences. It recommends standard letter symbols for over 400 primary and secondary concepts.

• **The Glenn L. Martin Co. has licensed** Hydropress, Inc. of New York City to manufacture and sell Martin's Marform metal forming units. Marform is a process for forming sheet metal which permits compound curvatures of varying depths to be produced at high speeds with no wrinkling. Wall thickness of the metal is not critical in the tooling design and surface finish of the metal is not affected by the operation.

• **Sidney K. Wolf**, manager of the special products division of Federal Telephone and Telegraph Corp. has been appointed Executive Director of the Munitions Board Electronic Division. This group is preparing mobilization plans to guide the services in dealing with the electronics industry.

• **During 1949 Consolidated Vultee Aircraft Corp.** had the lowest injury rate in the aeronautical industries safety contest conducted by the National Safety Council. Second place went to Solar Aircraft Co. and third place to North American Aviation. The industry average for injuries during 1949 declined 10% as compared to 1948-49.

• **Pan American Grace Airways claimed** a new commercial record for the flight time between Lima and Panama recently when Captain John S. Shepard flew the route in a Douglas DC-6 in five hours and five minutes, five minutes off the previous record time.

• **The Transport Workers Union, CIO**, has won an election entitling them to continue as bargaining agents for PAA's mechanics and ground crews, a right challenged by the Independent Federated Air Line Workers of American, TWU. About 4,000 employees are included.

• **James D. Cunningham**, president of the American Society of Mechanical Engineers, will be awarded the Chicago Technical Societies Council 1950 merit award on May 9th for "outstanding engineering, administrative and civic service."

• **R. W. Ayer**, until recently in charge of American Airlines' flight research program, has joined Kenyon Instrument Co., Inc. of Huntington, Long Island, as vice-president, engineering. Kenyon manufactures marine and aircraft instruments and components. Ayer has been actively connected with aviation, since graduating from Harvard Engineering School in 1929, as a pilot, engineer, designer and executive.

• **Gulf Oil Corp. has announced** a new all-weather lubricant for use in cabin pressurizing equipment. Known as Gulfite Oil 5W, the new lubricant has been under test in both the laboratory and in flight. It is now being used in Eastern Air Lines' AiResearch cabin pressurization units.

• **Aircraft Engineering & Maintenance Co.**, of Oakland, Calif., has completed the last C-54 overhaul in the \$10,110,600 program which it carried on for USAF Berlin air lift ships. AEMC was one of three concerns handling overhaul and cyclic maintenance work in direct support of the air lift. It handled 243 ships. At peak operation AEMC's employment was 1,842.



# BLASTING BEAUTY!



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Like all Martin developments, the XB-51 is the product of a highly skilled engineering team. Electronic, aerodynamic, metallurgy research, servo-mechanism studies—all play their parts in the technical leadership Martin offers its customers today. All play their parts as Martin extends research frontiers in advanced design aircraft, rocketry, jet propulsion, supersonic missiles and other far-reaching fields! **THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.**



Powered for faster starts, the Martin XB-51 has great versatility for operations to and from smaller combat area fields and fighter strips. For landings, the new Martin bomber has a parachute stowed aft which may be



released at the pilot's discretion for more rapid deceleration.

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## OPERATIONS-MAINTENANCE

numbers have increased from 256 in 1947 to 294 in 1949, and that in the same period average pilot salary has moved from \$5,861 per year to \$8,316.

No small part of this increase can be attributed to a sharp increase in pilot utilization. In 1947 average pilot utilization of was about 70% of the maximum possible. With pilot pay tied to hours flown, salaries were lower and relatively large numbers were required for the miles then being flown. During the time when revenue ton-miles were increased by approximately 4 million per quarter, pilot utilization was brought to an average of about 95% of the maximum.

### Dispatch Group Cut

While stations served have increased from 40 to 52, M. A. Crowder, manager of dispatch, has been able to reduce personnel in this group from about 50 to 28. This does not include changes which were carried over into other operations by organizational moves. Where there were previously 15 meteorologists at Capital, there is now a single supervisor, D. M. O'Keefe, who coordinates U. S. Weather Bureau activities with the airline's needs and provides comparable service.

The communications department employed 263 people in 1946. At that time, with 40 stations, communications salary costs were about \$36,700 per month. By substitution of VHF communications, reduction in private line service, and intelligent allocation of phone privileges, Jerry Aschenbaugh, superintendent of communications, has been able to operate with 130 personnel and cut communications salary cost for 1949 to about \$33,200 per month.

This despite the fact that over 1,000 miles of teletype service have been added to meet new service requirements, and fixed costs have risen sharply. By combining operations and traffic communications on one private line linking Chicago and Washington, instead of the two previously used, a saving of \$2,500 per month was made. During 1949 reallocation of office phone service brought about a saving of \$1,544 per month but rate increases by six of the companies supplying service ate up all but \$175 of the gross saving.

### Message Cost Reduced

With well over 3,500,000 landline messages being sent each year, the communications group has been able to keep costs fairly constant even though there have been from one to three separate 15% increases in almost every area. Communications costs, excluding airborne communications, per passenger have been reduced from 35½¢ in 1947 to 32½¢ in 1949 while the number of stations has increased from 40 to 52.

Capital Airlines handled its own conversion of the Douglas DC-3 to provide additional seats, a step-type door, and similar improvements. It's the same 10-man engineering department that ac-

## —OPERATIONS-MAINTENANCE—

completed this conversion at about one-fifth of outside bid prices that is now evaluating the Super DC-3, working out details for the five Lockheed Constellations which Capital has contracted for and handling routine engineering. This number includes the supervisor, Lan Caldwell, four engineers, the drafting team and clerks.

### President Names Board For Communications Study

A new Communications Policy Board has been created by President Truman to study present and potential use of radio and wire communications facilities of both government and non-governmental groups and make recommendations regarding them. The executive order creating the board specifically cites the frequency problems which are under study, the relationship of government and non-government activities in these fields, international aspects of these operations and similar problems.

The committee, chaired by Irvin L. Stewart, president of the University of West Virginia, includes Dr. Lee DuBridge, president of the California Institute of Technology; David H. O'Brien, Hackettstown, N. J.; Professor W. L. Everitt, University of Illinois, and Dr. J. R. Killian, Jr., president of the Massachusetts Institute of Technology.

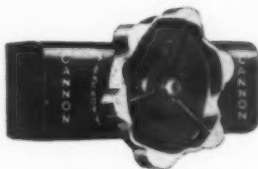
### Daily Plane Utilization Domestic

		Nov.	Dec.
American.	2 eng. pass. ...	4:33	4:03
	4 eng. pass. ...	7:34	7:16
Braniff	2 eng. pass. ...	6:57	6:17
	4 eng. pass. ...	6:11	5:58
Capital	2 eng. pass. ...	8:05	6:38
	4 eng. pass. ...	8:43	7:51
Carib.	2 eng. pass. ...	3:21	3:22
	4 eng. pass. ...	2:58	3:14
C & S	2 eng. pass. ...	8:03	7:23
	4 eng. pass. ...	8:39	8:32
Colonial	2 eng. pass. ...	5:17	5:22
	4 eng. pass. ...	3:13	3:37
CAL	2 eng. pass. ...	6:13	6:25
	4 eng. pass. ...	7:00	6:17
Delta	2 eng. pass. ...	5:07	6:03
	4 eng. pass. ...	6:08	6:27
EAL	2 eng. pass. ...	10:47	9:26
	4 eng. pass. ...	8:00	9:39
Raw.	2 eng. pass. ...	7:40	7:05
	4 eng. pass. ...	4:34	4:41
Inland	2 eng. pass. ...	2:04	1:56
	4 eng. pass. ...	10:00	9:28
MCA	2 eng. pass. ...	7:06	6:49
	4 eng. pass. ...	6:49	6:41
NAL	2 eng. pass. ...	7:17	7:41
	4 eng. pass. ...	2:29	5:04
NEA	2 eng. pass. ...	5:37	5:01
	4 eng. pass. ...	5:50	4:41
NWA	2 eng. pass. ...	6:31	6:37
	4 eng. pass. ...	6:46	6:44
Trans.Pac.	2 eng. pass. ...	3:59	3:59
	4 eng. pass. ...	1:58	2:16
TWA	2 eng. pass. ...	6:06	5:51
	4 eng. pass. ...	8:23	8:19
UAL	2 eng. pass. ...	6:09	6:47
	4 eng. pass. ...	4:48	4:31
WAL	2 eng. pass. ...	6:37	6:34
	4 eng. pass. ...	4:56	5:15
	2 eng. pass. ...	5:47	5:59
	4 eng. pass. ...	4:25	1:44



not only pioneers in design,  
development and production,  
but also largest suppliers for  
the aircraft industry

## CANNON PLUGS



Battery Disconnects



Standard "AN"



Standard and Firewall  
"K" and "RK"



Firewall "AN"



Rock and Panel "DP"



New "AF"



Glass Sealed

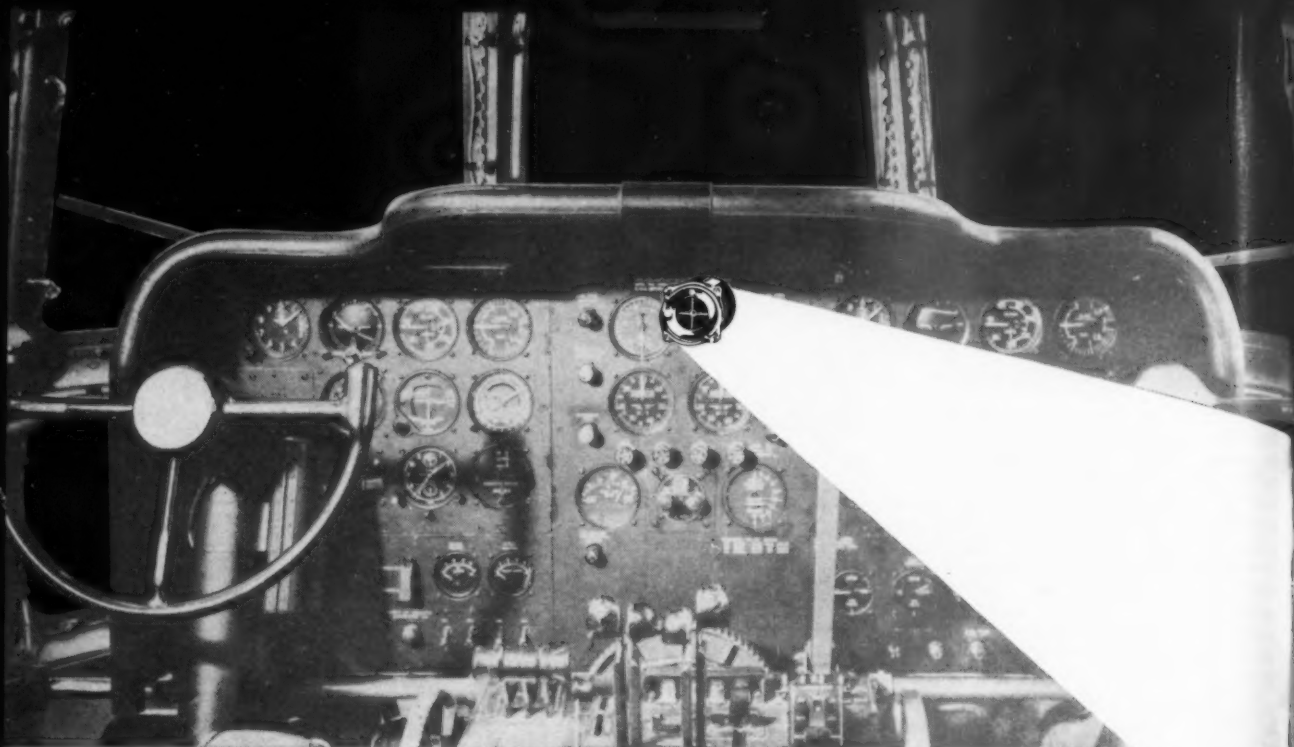
Douglas Aircraft, Lockheed, Boeing, Convair, Rohr, North American, Martin, Chase, Curtiss-Wright, Northrop, Fairchild, Ryan, McDonnell, Beech, Chance Vought, Republic, Sikorsky, Piasecki, Bell, United Helicopter, Wright Aero, Texas Engr., Hamilton Prop., Edo, Radio Plane, Grumman, etc., etc.

Cannon Electric leads in both volume and variety of electric connectors and d. c. solenoids, lamp sockets and pushbuttons for the aircraft industry and the related equipment installed in aircraft. Shown here is only a partial list of types. In addition, there are "RS," "RTC," Buffet Plugs, Hot Cup Receptacles, D. C. Solenoids, "XL," and other miscellany. Write for catalog covering particular type series or contact our nearest representative.

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SINCE 1915  
**CANNON ELECTRIC**





# *A Progress Report* on the Collins **STEERING COMPUTER**

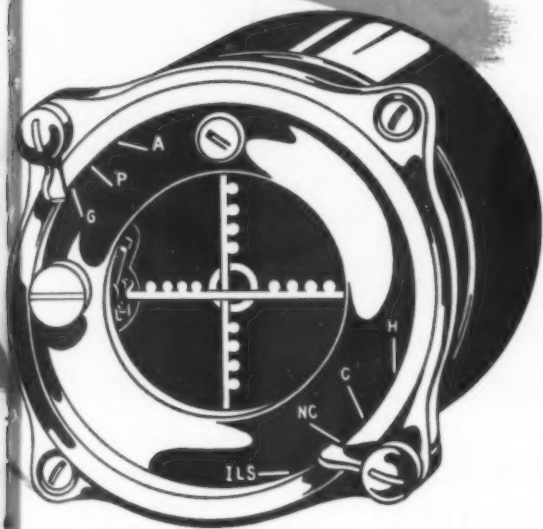


FOR SEVERAL YEARS the Engineering and Research Departments at Collins Radio Company have been working on a number of ideas for improving aircraft instrumentation and methods of flight control. One important result of this work is the development of new equipment and instruments which present to the pilot easily interpreted steering information for flying and approaches.

In brief, this new equipment obtains heading, rate of turn, altitude and other flight information from the aircraft instruments and radio and computes, instantaneously, steering information for the pilot. This information displayed on one easily visible crosspointer type instrument, tells the pilot how to maneuver his aircraft to make good a chosen course. He is thus relieved of the present necessity for continuously scanning and interpreting a large number of flight instruments to obtain the same information.

The steering information provided by the equipment assists the pilot to fly a precise course on the ILS beam thus permitting landings without excessive maneuver after breakout. All factors influencing flight are taken into account and the steering information is automatically corrected against potential errors, particularly those due to presence of wind, change of wind direction or velocity, change in aircraft trim, speed, power setting or flap position.





**THE STEERING COMPUTER** is fed flight data from the aircraft's gyro compass (via a compass heading selector), gyro horizon and ILS radio receiving system. Static air pressure at the aircraft's altitude and d-c and four hundred cycle a-c power are also required. Electrical and air pressure connections (if the equipment is installed in a pressurized aircraft) only, are required to the computer.



**THE PILOT'S STEERING INDICATOR** presents easily interpreted steering information in the form of deflection of two cross-pointers. To fly a precise course it is only necessary for the pilot to maneuver the aircraft to keep the cross-pointers centered. The instrument illustrated combines information display and computer function control. Vertical steering information such as constant altitude, pitch attitude on glide slope, is selected on the upper left switch. The right lower switch selects horizontal steering information, as horizon, compass or ILS localizer.

Resolution, and roughness or short period disturbances in the ILS beams. Steering information is also provided during aircraft route flying for maintaining constant heading, altitude and pitch attitude and for making procedure turns. Extensive flight and laboratory tests have proven the worthiness of this idea and the capability of the equipment. Engineering of the equipment to specific types of aircraft and to meet all details of airlines operating requirements remains to be accomplished. Collins is most interested in insuring that the final design, form and function of the equipment is determined in cooperation with the airlines and other aircraft operators. To this end Collins is hopeful that interested operators will wish to share in extensive flight evaluation tests of pre-production models of this equipment under their own routine

operating conditions. Models of the equipment, including full instrumentation, will be available in the immediate future, at reasonable cost, for flight evaluation. Various forms of steering display instruments will be available. For example, the Pilot's Steering Indicator illustrated combines steering display and equipment function control. Another type of PSI will combine steering display and artificial horizon.

The Steering Computer and instrumentation is the first equipment resulting from the Collins Radio Company's flight instrumentation development program, the goal of which is a completely coordinated system of navigation and flight control.

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Gilfillan GCA has met the challenge of the air age. Its mastery over bad weather was dramatically proved by the Berlin Airlift. GCA received a large share of the credit for the success of Operation Vittles. ★ Today, GCA is on the job at 167 airports around the world. At GCAirports, schedules are regular, delays rare. ★ Gilfillan GCA—built with the *future* in mind—is the only navigational aid with the speed, accuracy and spacing safety features to cope with the supersonic problems of *tomorrow's* jet aircraft. ★ Air safety cannot wait. Gilfillan, in cooperation with the CAA, USAF and USN, is the prime factor in keeping air safety equipment in step with air travel.



**Gilfillan**  
LOS ANGELES

# LAV Moves Engine Overhaul To Modern Caracas Base

By GERARD B. DOBEN

Geographically, Venezuela sits on top of the southern hemisphere but more importantly it has plans to occupy a similar place of eminence in the field of commercial aviation in South America. A step in this direction is the comparatively recent establishment of a new maintenance and overhaul base by Linea Aeropostal Venezolana (LAV) at La Carlota Airport, on the eastern outskirts of Caracas.

La Carlota airport is situated about eight miles east of the capital on a plateau of the Andean mountains and to its modern shops, LAV has transferred the overhaul of the power plants on its two-engine equipment. In addition, it already is doing the engine overhaul for two other Venezuela airlines—AVENSA and RANSA. This is believed to be but a small beginning of the contract work that it will soon be doing for other airlines in South America.

The new overhaul base, including land, buildings, machinery and inventory, represent a total investment of around four million bolivars or somewhat over \$1,300,000 in American money. The two main buildings have approximately 20,000 square feet of floor space and presently 85 full-time employees are engaged in overhaul operations under the direction of Arturo Mera, general manager of LAV's overhaul and maintenance work at La Carlota.

Guiding LAV's overall progress in the field of both domestic and international air transportation is Col. Guillermo Pacanins, who as managing director, has put this government-owned airline on a sound operational and financial basis. LAV's aircraft equipment today comprises 26 Douglas DC-3's, four Lockheed Constellations, two Martin 2-O-2's and two Lockheed Lodestars for training and executive use.

## 40% Done in U. S.

During a visit to Venezuela last month, Col. Pacanins told this writer that it was not the plan of LAV to transfer all of its maintenance work from the U. S. to Venezuela. He said that 40% of the work would remain in the States. LAV operates four Constellations and engine overhaul for these planes will continue to be done by the Pratt and Whitney Aircraft Division of United Aircraft Corp. in East Hartford, Conn., with maintenance at New York's International Airport.

"LAV is very happy over the cooperation it has received from its 60 American employees and mechanics in the States.

There has been no trouble and we are perfectly satisfied," he stated.

A visit to the La Carlota shops, without reference to geography and the language of the employees, is not unlike the experience of going through any modern well-managed overhaul and maintenance base in the United States. Our tour was conducted by Juan Rojas, director of traffic for LAV and Mera, the young plant manager. Serving as interpreter and technical adviser was Lake Littlejohn, head of the U. S. Civil Aviation mission at Caracas, who today is one of Venezuela's most ardent aviation boosters and who rates highly both in and outside of government aviation circles throughout the country.

We followed the course of a P & W, R-1830-92 series engine through the overhaul shop, from the time of its receipt until it was returned to inventory and ready to go back into one of LAV's 26 Douglas DC-3 aircraft.

## Parts Cleaning

The plant presently has the capacity to overhaul 30 engines and 30 propellers a month. Overhaul begins, of course, with a tearing down of the engine into its component parts. A careful record, in duplicate, is kept of each part so that when the engine has been completely overhauled, management has complete data on all replacements as well as information on the extent of wear and damage to parts replaced.

Parts are placed in baskets before they are sent to the cleaning vats. Here they are immersed in several tanks contain-

ing cleansing chemicals for cylinders, pistons, rods and other parts. Turco chemical is used in the cleaning operation after which the parts are sprayed clean and routed through the inspection areas for visual, magnetic and zygo checks and vernier measurements. All of the machines used are standard American equipment, with the exception of one of Swiss make.

Where tests and calibrations reveal wear beyond the permitted tolerances, new parts are taken directly from stock for replacements while in some cases, smaller parts are made in the company's machine shop. Other parts are routed through the plating divisions to be re-finished and brought up to tolerances.

Reassembly follows and once the engine has been completely remounted, it is sent to the test bench where it is run for eight hours during which careful check is kept on oil and gas consumption, temperature, vibration and other performance equations. The test bench is equipped with two cells for engines and a noise-proof chamber where one mechanic checks the instrument boards with their sensitive measuring instruments. A special record of test results is kept on each engine overhauled.

The LAV shop has a special department for the repair of accessories such as motors, starters, generators, magnetos and carburetors. The shop is equipped with all standard U. S. testing machines. There is another department for the repair of all electronic and radio equipment with the usual testing devices common to American overhaul shops. Another department handles propeller inspection and repair with a special chamber and equipment for achieving the perfect balance required in efficient and safe operation.

Nera explained that in many instances,



THIS PICTURE shows one section of LAV's modern overhaul base at La Carlota Airport, located eight miles east of Caracas. The shop is built according to U. S. design standards and the best in U. S. overhaul procedures are carried out. It has an overhaul capacity of 30 P & W R-1830 series engines a month, with an equal capacity for Standard propellers.





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## OPERATIONS-MAINTENANCE

LAV repair and overhaul standards are higher than the manufacturer's recommendations require because of the nature of some of the airports into which LAV aircraft operate in the interior of Venezuela. This is especially true of all landing gear and accessories because the stresses of landing and take-off are accentuated by rough landing surfaces in many parts of the country.

The morale of LAV's maintenance employees is high. This in itself contributes to high-quality workmanship. The company has provided them with one of the most modern workshops in South America. They are not unionized. Mera says there is no need for a union. Their pay and working conditions compare with the best in the States.

Morale is high despite the fact that the employees have had to give up a cherished custom—the noon siesta. While most offices and stores close for two or two and one-half hours during the middle of the day for a rest period, La Carlota employees come to work at 7 a.m., eat breakfast in the shop cafeteria at 9 a.m., enjoy a 10-minute cafe (coffee) period at 12 o'clock and go home at 3 in the afternoon. The distance of La Carlota airport from the city prohibits the noon siesta.

### Wins Safety Award

LAV employees are proud of their workmanship and have a right to be. During the week we visited Caracas, LAV received an Inter-American Safety Council 1949 Aviation Safety Award for operating 4,089,583 flight miles and 57,500,540 passenger miles without accident or fatality to either passengers or crews. Good maintenance and overhaul is a part of that record.



COL. GUILLERMO PACANINS, managing director of Linea Aeropostal Venezolana, is today the guiding genius of the government airline which is now 20 years old. He is a former military pilot with 5,000 hours of flying time and a recognized leader in Venezuela's rise as an air-minded nation.

AMERICAN AVIATION



LOCATED ON a plateau in the Andes mountains is LAV's \$1,300,000 overhaul plant with 20,000 square feet of floor space. Lockers, showers a cafeteria and air conditioning has contributed

to high employe morale. The two main buildings are on the north side of La Carlota airport, which is destined to become one of the chief aviation centers of Venezuela.

La Carlota airport itself figures prominently in the future development of aviation in Venezuela. Because of the limitations of terrain, it is not now definitely known whether it will eventually be able to accommodate the larger, four-engine transport planes although DC-4's operated into it on an experimental basis. Its principal runway is 6,600 feet long. Commercial operations still center at Maiquetia Airport, near the seaport town of La Guira on the northern coast of Venezuela.

While a considerable amount of LAV's maintenance work is still done at Maiquetia, the opening of La Carlota has made possible the transportation of engines and accessories to the new overhaul base in two-engined aircraft, although trucks also are still being used in transporting engines and parts over the 30-mile mountain highway between La Guira and La Carlota. Plans have been made for a new eight-lane highway to replace the present tortuous route over the mountain designed to cut down travel time from 1½ hours to 15 minutes.

The entire La Carlota set-up, both overhaul base and airport, has the support of the Venezuelan government. Capt. Roberto Vzeche, chief of the Airworthiness Division of the Civil Aviation department, and his technical advisor, Thomas Knust, are enthusiastic supporters of its operation and development. They pointed out that the overhaul base had been established on the basis of the same procedures and safety requirements in the United States, with somewhat higher standards because of the condition of many of Venezuela airports.

**ICAO Chart Manual:** ICAO has published production progress report number 1 titled *Aeronautical Charts*, a 50 page book accompanied by sample charts. The manual describes world aeronautical, route and planning charts in various scales plus radio facility charts. Price 30c. Available from Secretary General of ICAO, International Aviation Building, 1080 University Street, Montreal, Canada.

## En-Route Traffic Control Planned in Venezuela

The Venezuelan government is preparing to let a \$1,500,000 contract soon for U. S. communication equipment for air route traffic control which will link, in the initial stages of the program, five international and eight domestic airports in Venezuela.

While the bids were received last November, only recently there was appointed a commission to study the offers and recommend the placement of the contract. Maj. Carlos Maldonado Pena, director of transportation, is chairman of the special commission which held its first meeting late in February. Another member of the commission is Lake Littlejohn, head of the U. S. Civil Aviation Advisory Mission, in Caracas, who during the past 18 months has done much to guide Venezuela toward a modernization of all phases of its commercial aviation activities.

Venezuela already has airport traffic control and approach control at all of its major airports. The new program provides for point-to-point and air-to-ground communication between the five international airports at Maracaibo, Coro, Maiquetia, Barcelona and Maturin together with eight other national airports whose traffic contributes immediately to the international traffic problem. It is believed that Venezuela will be the first country in South America to effect en-route traffic control.

The new program for en-route traffic control is the result of the joint efforts of the U. S. mission and the personnel of Aerovias Nacionales, the Federal Airways Division of Aeronautica Civil. The chief of this division is Mariano Caravajal G., an able young Venezuelan of 28 years who was one of 48 South American students enrolled in the CAA training center at Kansas City during the war.

Upon his return to Venezuela he instituted the airport traffic control and

approach control in use there and has conducted since then a class in communications and air traffic control. His efforts have provided Venezuela with a sufficient number of well-trained controllers, all of whom can give airport traffic instructions in both Spanish and English. Littlejohn believes that the program will give Venezuela the leading place in South American air traffic control.

Littlejohn also has high hopes for the accomplishments of Dr. Freddie Mueller, chief of the Legal Section for Aviation in the Ministry of Communications. Mueller, a lawyer, has been to the U. S. recently under a CAA grant studying basic civil aviation law in the legal divisions of CAA and CAB. He is working on a revision of Venezuela's basic aviation law and will incorporate, it is expected, the best U. S. features in the Venezuelan draft.

Gordon Pearson, with a background of service with the International Civil Aviation Organization (ICAO) is expected to join Littlejohn's mission in the near future as a communications specialist and will assist in the installation of Venezuela's new en-route communications system.

## Beech Awarded Contract For Twin-Engine Spares

Beech Aircraft Corp. has signed a contract with the USAF to deliver approximately \$1,500,000 worth of spare parts for the twin-engine Beechcraft now in military service. Part of the order, which is scheduled for delivery over a four-month period starting April 1, will be allocated to the Air Force's Foreign Aid Program.

Beech expects to complete the contract, which was negotiated by O. Lee Elrick, manager of the Beech spare parts sales division, without adding to its present personnel roster which numbers about 2,100 people.

## Extra Section

By William D. Perreault



**A** BRIEF look at Northwest Airlines' maintenance cost sheet provides a startling idea of the cost of small concessions made in bargaining contracts. During 1949 the 20-minute lunch period and two five-minute coffee periods daily, which is provided on company time, represented a direct cost of \$296,000. This figure does not take into account that actual time away from the job, before and after each of these periods, adds a sizeable sum of time to the half-hour daily attributed to each man in the computation. Few people stop to think that time "donated" in this manner represents a greater cost than another two-week paid vacation for all the employees. Direct time loss for paid lunches and coffee periods exceeds the 80 hours of annual paid vacation given each employee.

The U. S. Department of Labor has published a pocket-sized booklet titled "Butch Learns to Lift," an amusing and educational presentation of a serious problem. Along with clever cartoon reminders and a light text, "Butch Learns to Lift" provides eight simple rules which, if applied, would cut down considerably on physical damage which so often results from improper handling methods. Copies available from the Bureau of Labor Standards, U. S. Dept. of Labor, Washington 25, D. C. at 10c per copy or \$5 per 100.

The National Patent Council quotes the Official Gazette of the Patent Office as listing 35,147 new patents during 1949. The year 1949 was started with patent number 2,457,797 while 1950 started with number 2,492,944. Weekly average for 1949 was 676 patents. Think there's no room for new ideas, nothing new under the sun? The Patent Office records sure criticize that idea. Yet its interesting to talk to aircraft designers and see how many of the "bright new ideas" are found already on the patent lists when an attempt is made to record them.

Douglas Aircraft Co. has been checking industry interest in a turbo-prop version of the Douglas DC-6. Douglas has told airline officials that the DC-6 fuselage design will permit speeds of about 375 mph and that the turbo-prop engines, presumably Allison's, would bring the speed into this range.

Ever see any gold-plated spark plugs? EAL president Eddie Rickenbacker recently made gifts of gold-plated spark plugs to R. A. Stranahan, president of Champion Spark Plug Co.; to radio star Arthur Godfrey and to Wayne Parrish, editor and publisher of AMERICAN AVIATION. The plugs were true "Champions," part of the 144 plugs used during the 811 consecutive hours' flight time logged during and after Rickenbacker's good will tour of South America in the Wright engines of an EAL Lockheed Constellation. Based on a cruising speed of 300 miles per hour, these plugs saw about 243,000 miles' service or the equivalent of almost ten times around the world at the equator.

Speaking before the Guggenheim School of Aeronautics students recently, Hugh L. Dryden, director of NACA, summed up the importance of performance as well as speed in the following manner: "It is not simple, but certainly it is relatively simple to contrive a machine to go fast. But practical operational speed is the most important attribute of an airplane. What makes the airplane design game worthwhile are the beautifully balanced compromises that give the craft an ability to take off and land safely, to have a useful range, to carry a useful load, to operate at desired altitudes, to maneuver for its intended purposes, to withstand the air loads imposed upon it—in short, to do everything we want it to do as well as go fast." It is this simplicity of expression that makes this top flight scientist an interesting speaker.

## Among the Suppliers

The Victor Chemical Co. of California, Inc. has changed its corporate name to Jackson Chemical Co. of California, Inc. . . . William R. Whittaker Co. of Los Angeles has opened an eastern sales office in Baltimore, Md., headed by J. Larry Simpkins, with temporary headquarters at 3513 Lyndale Avenue . . . Purolator Products, Inc., Newark, N. J., manufacturer of filtration equipment, has appointed W. Herbert Hultgren assistant chief engineer.

Air Associates, Inc., of Teterboro, N. J., has expanded its nationwide distribution of aircraft supplies and materials by adding new facilities at Miami International Airport, Florida, headed by Robert E. Ringle. Also, arrangements have been completed with The Goodyear Tire and Rubber Co. for the new Miami Air Associates service center to operate the Goodyear Tire Service Exchange Plan . . . Joseph W. Powell, Jr., vice president of American Research and Development Corp. of Boston, was elected president of Circo Products Co., and Fenton M. Davison, vice president, has been placed in charge of all operations of the company. New general offices have been opened at 6531 Euclid Avenue, Cleveland, Ohio . . . General Electric's commercial equipment division in Syracuse, N. Y. has announced the following appointments: F. P. Barnes, sales manager of broadcast equipment; L. W. Goostree, Jr., sales manager of communication equipment; H. M. Wales, sales manager of marine and aviation equipment; and N. Gada, assistant to the manager of sales.

Reagan C. Stunkel, formerly president of Aviation Maintenance Corp. which is now being dissolved, has been appointed executive vice president of Hydro-Aire, Inc., hydraulics and components manufacturer of Burbank, Calif. . . .



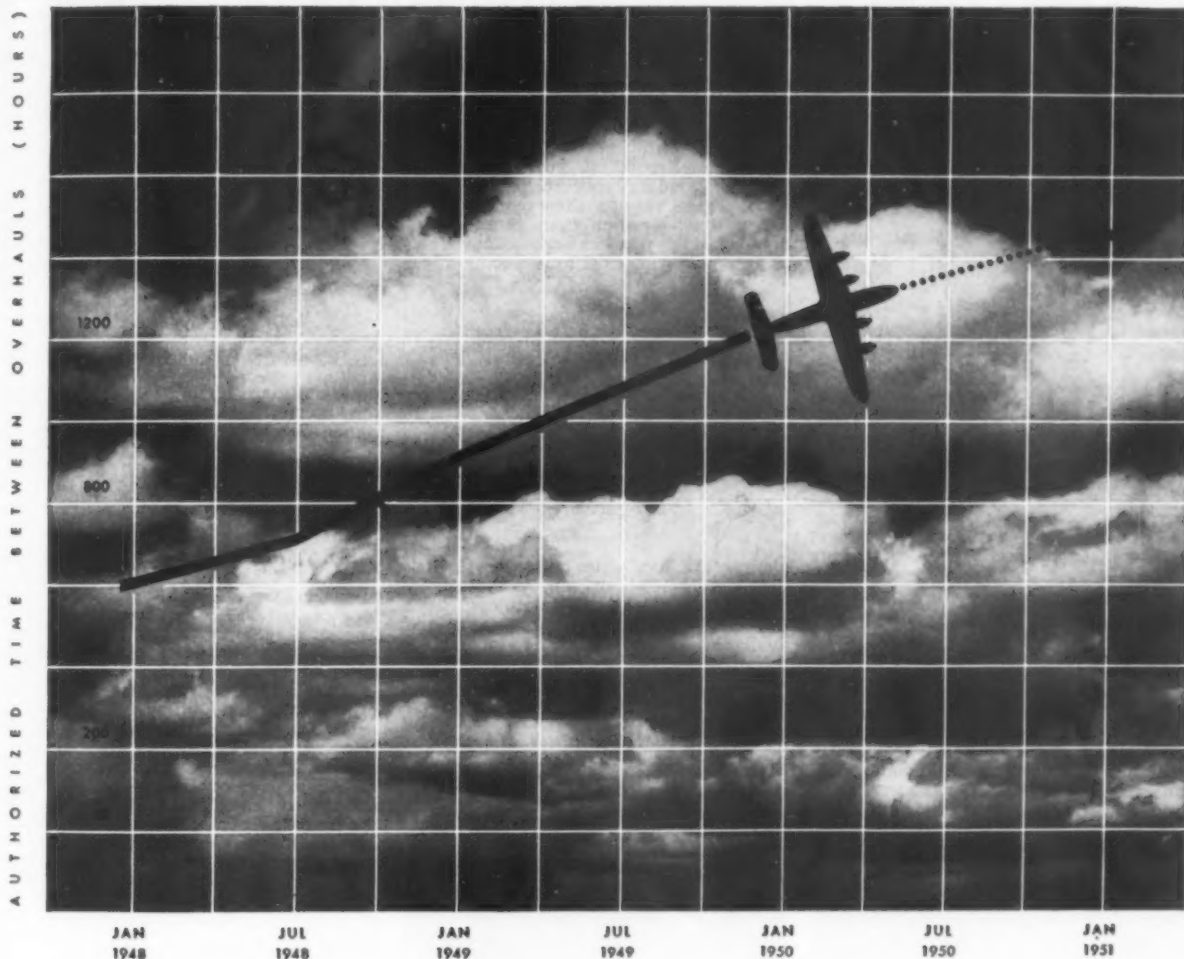
Atkinson

Lear, Inc., has appointed R. E. "Rusty" Atkinson as sales manager of its Romec Division, located at Elyria, Ohio. William B. Yeager has been elected vice president, secretary-treasurer and a director of Menasco Manufacturing Co., Burbank, Calif., replacing G. Preshaw who resigned as secretary-treasurer and director. Janet Foulkes was elected to the office of assistant secretary . . . Robert N. Hendrickson has been promoted to vice president in charge of sales engineering for the Huck Manufacturing Co., Detroit, Mich., and Frank A. Dobbe has been named vice president in charge of sales.

A new customer service department has recently been opened at the Minneapolis, Minn., headquarters office of Van Dusen Aircraft Supplies.



# BIG GAINS *in Fleet Reliability*



*More flight hours... more profitable airline operation... are end results of this sharp upward trend in the authorized time between overhauls of Cyclone engines.*

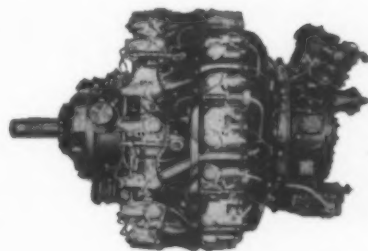
**Wright Cyclone 18BD on the Lockheed Constellation saves hundreds of overhaul and spark-plug-change hours.**

● NEWS OF THE MONTH is the endurance record of the Wright Cyclone 18BD on the Lockheed Constellation... despite the short time it has been in production for airline service.

● In the brief span of two years, this 2500 horsepower aircraft engine has extended authorized time between overhauls from 600 hours to 1200 hours in fleet operation.

● In addition to this outstanding performance record, a nearly 70% improvement — from 300 to 500 hours — has been effected in the authorized spark plug change time.

● Such records reflect the sound engineering design and built-in durability typical of Wright Cyclone engines... characteristics that have produced these gains in authorized overhaul time... corresponding reductions in overhaul costs... and customer-satisfying schedule reliability.



POWER FOR AIR PROGRESS

# WRIGHT

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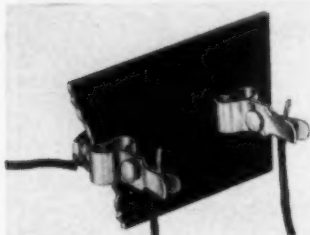
A DIVISION OF  
CURTISS  WRIGHT  
FIRST IN FLIGHT

MARCH 15, 1950

## NEW PRODUCTS

### Test Clip

Grayhill, 4524 W. Madison St., Chicago 24, Ill., is marketing a simplified test clip to speed testing of electrical apparatus. The unit can be permanently mounted on the panel of any test equipment or mounted temporarily for one-time operations. Leads are simply slipped in or out of the clamp type jaws. The spring tension of the clip,



which is adjustable by tightening the hex nut that mounts the clip to the panel, holds the wire firmly without requiring manual opening or closing of the jaws.

### Box Type Truck

Tobey Manufacturing Corp., 1221 El Segundo Blvd., El Segundo, Calif., has introduced an all-aluminum box-type truck. Shown here is a Tobey truck with 24 x 48 x 33 inch box weighing only 95 pounds. It is mounted on five-inch Airlite wheels in aerol casters. Available in many sizes and capacities, the Tobey box truck is constructed with aluminum alloy angles for frames and panels of aluminum alloy sheet flush-riveted with smooth interior finishes.



This makes the unit non-magnetic and non-sparking. The aluminum construction makes it unnecessary to paint the unit and its non-sparking features prove particularly valuable where inflammable fluids are being used and sparks might offer a safety hazard.

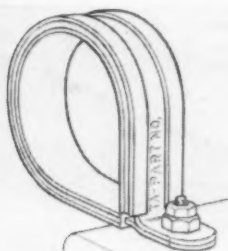
### Vernier Caliper

George Scherr Co., 200 Lafayette St., New York, 12, N. Y., is marketing the Mauser-precision vernier caliper for measuring outside, inside and depth dimensions. Each caliper has three accurately divided scales and verniers to read: (a) decimals to .001", (b) fractions to 1/128" and (c) on back scale 1/10 mm. Arrangement makes it possible to

convert decimals to fractions or mm. by merely reading the scales. Constructed of spring-tempered chrome steel forging hardened on all surfaces. Settings are instantaneously fixed. Price FOB New York is \$14.75.

### Bonding Clamps

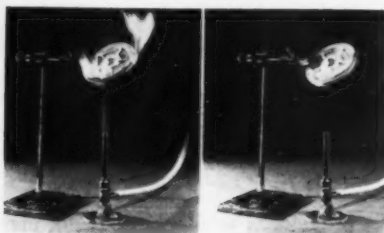
Thomas Associates, 4607 Alger St., Los Angeles 39, Calif., has announced a new line of self-bonding cushion clamps meeting bonding specification MIL-B-5087. These clamps show conductivity 19-300 times greater than required in the bonding specification. Copies of test report and sample conductive



clamps are available on request. Report covers 100-hour salt spray test on aluminum, steel and stainless steel clamps. TA self-bonding clamps are available in sizes from 1/4 inch to 6 inches inside diameter, in 1/16 inch increments.

### Aircraft Pulley

The Formica Co., Cincinnati, Ohio, has designed an aircraft pulley bearing the trade name "No Glow." In laboratory tests in which the Formica pulley was



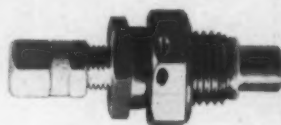
subjected to open flame tests with a Bunson burner, the pulleys ceased to glow almost immediately after removal from the flame while other pulleys remained glowing two minutes later.

Inquiries about equipment on this page may be sent either to AMERICAN AVIATION or direct to the manufacturer.

Readers looking for sources of special equipment are invited to write to AMERICAN AVIATION's equipment editor. Every effort will be made to provide information on manufacturers and suppliers who are in a position to furnish or develop needed airborne or ground equipment.

### Air Valve

Aro Equipment Corp., Bryan, Ohio, has announced an Air Force-approved high-pressure air valve, model 9894. The Aro air valve conforms to AN6287-1 for use on shock struts, air bottles and accumulators. It is suitable for installation with or without gauging devices on any boss having a diameter of



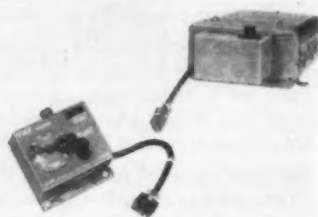
not less than 13/16", with or without serrations with a 1/4-20 centerline. Designed for operating pressures up to 3000 psi with an AN 809 valve core and AN 813 valve cap.

### Drum Pump

General Scientific Equipment Co., 2700 W. Huntington St., Philadelphia 32, Pa., is marketing a series of drum pumps for use on 15-, 30- and 60-gallon drums. The unit features a special spider design piston and intake opening and is designed to screw into the bung bushings on both 2 inch and 1 1/2 inch barrel openings. Will handle any fluid which seeks its own level except lacquer thinners. Heavy greases are pumped at rates up to 3 gallons per minute and higher rates are obtained with alcohol and light fluids. Model 825 with a regular spout for general use sells at \$11.80. Model 825A, equipped with a shut-off valve, to eliminate losses by evaporation, sells at \$14.10. Model 825B, with an 8 foot grease hose is priced at \$17.75.

### VHF Receiver

Lear, Inc., Aircraft Radio Div., 110 Ionia Ave., N. W., Grand Rapids 2, Mich., has supplemented its VHF Omnidirectional system of navigation with a new remotely-controlled VMF receiver with small cockpit tuning control. This re-



ceiver, Model LR-5BR, can be mounted in any convenient position in the fuselage. It features continuous tuning for all VMF tower, radio range and VOR reception facilities. Weight is 3 pounds, 11 ounces and size is 3 3/4 inches x 6-7/16 inches x 10-27/32 inches. The cockpit tuning control unit, Model LR5-CR, weighs 6 ounces and is 1 1/4 inches x 3-29/32 inches by 3-31/32 inches.

AMERICAN AVIATION

## Cash, Trips, Merchandise Offered:

# Employee Incentive Programs Spur Airline Ticket Sales

By ERIC BRAMLEY

A substantial investment is being made every year by the airlines in incentive programs to encourage their employees to sell more tickets, and practically all the carriers believe that their expenditures are paying off.

At the present time, there are probably more sales contests in the airline business than in any other form of transportation. The contests feature prizes in cash, all-expense trips and merchandise. If it were possible to obtain an accurate accounting of all the expenses involved, counting free trips, time off with pay, merchandise and cash, as well as the cost of setting up the contests, the industry probably spends several hundred thousand dollars yearly on incentive plans. Cash payments alone were over \$100,000 last year.

A majority of the 23 airlines covered by an AMERICAN AVIATION survey use contests based on exceeding station quotas, with cash prizes. Next in popularity are all-expense trips. There seems to be an increasing trend toward merchandise awards, with the contests being prepared by sales promotion agencies.

Most traffic officials say that the incentive programs have been beneficial and that they definitely would not favor their elimination. A dissenting opinion came from two feederlines, one stating that personnel had abused the rules, and the other that its salesmen felt that if incentives were necessary perhaps they should be paid more money in the first place.

## Missing Ingredient

The majority opinion is summed up by Prescott Tolman, who has given up his post as Eastern Air Lines' general sales manager to go into business for himself in the incentive program field. After a slow start, incentives are catching on in the airline business, he states. The slow start was occasioned by the difficulty in finding the right formula for a contest—a difficulty that arose because airlines sell a service and everyone has a finger in the pie before a sale is completed.

"Organizations lay heavy stress on training, advertising, sales promotion, publicity and a whole cycle of necessary items," he says. "Incentive is frequently a missing ingredient in many of the formulas for doing a job. I don't maintain that incentive is everything. It certainly is not a substitute for a

good, sound, basic sales program, but it is a necessary element in one. It amazes me how frequently it is overlooked . . .

"Contests supply a useful tool. They make work fun. People will extend themselves in the pursuit of a game. Competition is inherent in our nature. If you accept any combination of the above, you come out with a natural conclusion that incentive plans, such as contests, have a very important place in business . . .

"We have awarded winners, depending upon the type of contest, with cash, merchandise, automobiles, EAL stock, all-expense trips and honors. Yes, in fact we have even used a booby prize to needle the tail-enders."

## Favors Joint Program

On the other hand, Gwin Hicks, vice president-traffic manager of Empire Air Lines, said he favored only a joint sales program with another carrier. Empire personnel asserted "they are being paid to do the best sales and operation jobs they know how and that incentives indicate they, perhaps, should all be paid

more in the first place if they are expected to do better, or that monies expended in so-called bonuses would be better spent in furnishing them more sales tools to use to increase their efficiency," he states.

"Joint participation with other carriers' sales experts . . . provided the best incentive and challenge to improve their own sales talks and whet their initiatives by comparison with other carriers' personnel." All-expense trips were awarded as prizes in the joint Empire-Pan American contest.

G. S. Kitchen, sales manager of Chalmers Airlines, which has used a cash bonus plan, said: "I feel that there is a place for an incentive plan, but so far practically all plans are rather difficult to administer or have been abused by the personnel. My personal inclination is to stay out of incentive plans at least for the time being."

Comments from the other airlines on incentives were:

**American Airlines** (C. R. Speers, assistant vice president-general sales manager): Believes that contests have proved beneficial "and certainly would not favor . . . elimination." In 1949, AA had an international contest in which employees secured points for productive sales leads. AA gave 50 all-expense European trips to winners. It also had a Mexico contest, limited to reservations personnel (to qualify, an agent had to be responsible for booking at least three Mexico City passengers). First three prizes were all-expense trips to Mexico City.

AA now has underway its Spring Holiday contest. Sales managers and



**LOFTY ADVERTISING**—Car cards advertising TWA's coast-to-coast Sky Coach are flying about rooftops on air mail helicopters as well as traveling city streets on trolleys and buses in Los Angeles. R. E. Montgomery, regional sales manager for TWA, and Clarence Belinn, president of Los Angeles Airways, arranged this new deal in advertising and Hostesses Dorothy Turgeon (left) and Betty Backlin mount the first poster.



*Coming April 15th...*

# The Air Transport Progress Issue

OF American Aviation MAGAZINE

This special issue will feature a new, up-to-the-minute edition of "AIR TRANSPORT FACTS AND FIGURES"—the authoritative reference work compiled each year by the Air Transport Association of America. Staff-written articles summarizing technical and operational progress in both commercial and military aircraft will supplement the A.T.A. reports and statistics.

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In addition to our all-paid ABC circulation, this issue will be sent to every member of Congress, every important government official, every key air force and naval air officer, and key aviation officials of foreign countries. No increase in advertising rates. Forms close April 5.

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representatives will receive points for achievement of domestic passenger revenue quota, overseas revenue, airfreight and international air cargo, number of presentations of AA movies, speeches delivered, etc. The five AA regions will be competing within themselves, and first prize will be two-round-trip tickets

### Nature of Awards Given in Airline Incentive Programs

(Used Last Year or Planned for 1950)

	Cash	All-Ex- pense Trips	Mer- chandise
All American ..	Yes	Yes	No
American .....	No	Yes	No
Braniff .....	Yes	Yes	Yes
Capital .....	Yes	Yes	No
Challenger .....	Yes	Yes	No
Colonial .....	Yes	No	No
Continental .....	Yes	No	No
Delta .....	Yes	Yes	No
Eastern .....	Yes	Yes	Yes
Empire .....	No	Yes	No
Mid-Continent ..	Yes	No	No
National .....	Yes	No	No
Northeast .....	No	No	Yes
Northwest .....	No	No	Yes
Pioneer .....	Yes	Yes	No
Robinson .....	No	No	No
Southwest .....	No	Yes	No
TWA .....	Yes	Yes	Yes
Trans-Texas .....	Yes	No	No
United .....	No	Yes	Yes
West Coast .....	Yes	No	No
Western .....	No	Yes	Yes
Wisc. Central ..	Yes	No	No

#### NOTES:

Free mileage awards are included under all-expense trips.

Contests conducted only in local offices, and not on a system-wide basis, are not included.

In addition to awards mentioned above, Eastern also includes stock in the company.

to any point on the system plus seven days expenses.

TWA (C. S. Fullerton, general sales manager): TWA is "strongly in favor of contests" and paid cash prizes of \$11,600 in 1949. Domestic Sellaer contest was for non-selling personnel, who furnished leads to district offices. TWA revenue was credited to the employee on the basis of 1½¢ per TWA revenue dollar. These points were convertible into merchandise by use of an award book provided by Belnap and Thompson, sales promotion agency.

The seven-month contest accounted for \$470,000 revenue, and the winner received a three-day all-expense New York trip. TWA is now using a cash prize contest to stimulate Quickie Vacation sales, a contest to encourage hostesses to sell tickets (cash prizes) and local round-trip contests, with prizes left up to district sales managers.

United Air Lines (R. M. Rummel, publicity manager): UAL is giving two-week all-expense Hawaiian vacations to the persons making the "telephone sale of the year," "counter sale of the year," and "outside sale of the year." There are similar monthly citations with no prizes. UAL last year held a \$10,000 prize letter contest, "How I Can Help Sell United." Prizes included a new car, trips to Hawaii and Mexico and 30 other awards. A decided increase in sales by non-selling employees was noted

in months after the contest. UAL stations are also conducting local contests.

**Northwest Airlines:** Company is now conducting a sales contest for all employees except sales. Contest period is Jan. 15-May 14 and contestants are awarded 10 sales points for each dollar of on-line passenger revenue substantiated by a validated "prize flight" ticket. To qualify, a contestant must produce a minimum of \$100 in completed sales during the period. An elaborate catalog lists merchandise awards.

Says J. B. McCullough, contest chairman: "The cost to Northwest . . . for prize awards would amount to the same as we would ordinarily pay a travel agent . . . The employee actually realizes a saving of about 25% because we purchase the merchandise from the contest company at discounts ranging from 15% to 30%. The contestant must contact the prospective passengers and sell them on flying with Northwest and ask them to turn in their prize flight cards. This . . . card must be presented at NWA ticket offices at the time transportation is purchased.

"The ticket agent then validates the prize flight ticket, fills in the amount of net transportation purchased, and forwards it to the campaign office where credit is given to the individual's account. Once a month we send each employee a check which indicates the number of points that have been accumulated for his account. They may then . . . send in a purchase order for the merchandise . . ."

**Delta Air Lines** (Laird Parker, vice

president-traffic and sales): Delta, one of the first lines that went into full-fledged incentive plans, uses a system based on cash payment of a percentage of salary if station makes quota, plus more payments if quota is exceeded by various amounts, plus payment if system exceeds quota. Restricted to employees whose primary duties permit them maximum opportunity for sales contact with public, or maximum opportunity for improvement of station services.

There is also a cash award to the station attaining highest percentage over quota, and to the station exceeding quota by greatest number of dollars. Employees vote how this money will be used. Delta paid out \$65,000 in 1949. It has also started three-month contests for the best sales idea. Winner receives free mileage for two people between any two points on the system plus week's vacation with pay or \$100 cash. Grand prize for the year will be a week's all-expense vacation for two at a West Indian resort.

**National Airlines** (Walter Sternberg, vice president-sales): "Contests are here to stay and to become a definite form of incentive generator for better sales, better service and better management. We use a . . . contest . . . which is purely a dollar quota plan (passenger and cargo revenue) with a cash award. Had four months' experience with it in 1949—quite successful—and have paid out \$5,325 . . . A station can win about \$10 per employee per month with an additional \$50 each if they made their four months' quota. We've

Stop off for a  
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**TWA**  
**CONSTELLATION**  
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## Contractor saves penalty of \$500 — by investing \$3.84 in Air Express



**Time clause** in housing project paving contract stood good chance of being invoked when equipment broke down at 5 P.M. So 10-lb. carton of replacement parts was Air Expressed from 1200 miles away. Delivered in just 8 hours. The Air Express charge was only \$3.84—and contractor completed job on time.



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**World's fastest shipping service.**

**Special door-to-door service** at no extra cost.

**One-carrier responsibility** all the way.

**1150 cities** served direct by air; air-rail to 22,000 off-airline offices.

**Experienced Air Express** has handled over 25 million shipments.

Because of these advantages, regular use of Air Express pays. It's your best air shipping buy. For fastest shipping action, phone Air Express Division, Railway Express Agency. (Many low commodity rates in effect. Investigate.)



Rates include pick-up and delivery door to door in all principal towns and cities

A service of  
Railway Express Agency and the  
**SCHEDULED AIRLINES of the U.S.**



### TRAFFIC & SALES

renewed it for six months, January to June."

**Capital Airlines** (J. W. Austin, vice president-traffic and sales): "We believe only in cash awards, and are perfectly willing to pay off for a job well done." Employees can make 2% on charter business they sell, and 2½% on international tickets (remainder of 7½% commission goes to the company). Only departure from cash awards is contest now running in which person booking greatest dollar volume of international business will receive a two-week trip to Europe (for two).

**Braniff Airways** (Rex Brack, general traffic and sales manager): "There must always be a dual purpose behind any incentive program. First, we always want to see returns in . . . revenue. Second, we want to see bettered technique and heightened morale in sales staffs." The 1949 sales contest was based on station quotas (quotas on gross revenue, sale of courtesy card and air travel plans and package tours) with merchandise prizes to winning station.

In another contest, any employee selling a group to Cuba, Panama or South America received a week's time off with pay, free transportation for two and a \$150 expense account. Braniff also prints a picture of the "salesman of the month," believing that "recognition" as well as material award is important. Payment of cash prizes is avoided wherever possible.

**Western Air Lines** (Arthur Kelly, vice president-sales): Two 1949 programs. One was for non-selling personnel and their families, as well as families of sales personnel, with merchandise prizes to the five people who sold the most tickets. Other was set up on an originating passenger quota basis for each station each month. There were merchandise prizes plus three all-expense trips.

WAL last month started a program (experimental at first and restricted to Los Angeles area) with the aid of a professional merchandising firm. It is for non-selling personnel, with merchandise prizes based on points for each ticket sold (points approximate 4% of the ticket's net value). "We feel that incentive programs designed for non-selling personnel are merely another good means of adding to our sales force."

**Continental Air Lines** (Stanley Halberg, general traffic-sales manager): CAL is using two plans which "have met with unprecedented enthusiasm . . ." One pays 5% commission on all passenger business (CAL portion of ticket), including charters developed and sold, by hostesses, pilots and Denver headquarters employees other than officers and department heads. Other is a bonus plan for all field personnel, with cash awards for employees at stations exceeding quotas.

**Mid-Continent Airlines** (Hugh Coburn, vice president-traffic and sales): "We have found that due to rapidly changing conditions it is most difficult to establish fair and logical quotas for the various stations, and have, therefore, avoided the practice of using quotas . . . Instead we have concentrated on incentives for each station to improve its load factor and round-trip sales efficiency, competing chiefly with themselves rather than with other stations."

Cash awards (\$3,565 in 1949) are made to stations, with employees voting on use

AMERICAN AVIATION



# Over the Counter

of the money. MCA also pays commission (\$2,869 in 1949) to outside salesmen for sale of air travel plans, charters and group movements. It is considering cash bonuses to employees selling certain all-expense tours, and also merchandise awards.

**Northeast Airlines** (George Scott, general sales manager): NEA is now in the second three months of its winter sales campaign, with sales and operating personnel eligible. Each participant receives points if his station makes quota or better system performance, more points for exceeding quota, plus points if his station is first, second or third in round-trip sales. Prizes are merchandise. Scott says: "1,000 points cost Northeast \$5. Although we spend \$5 on any given prize, we are able to purchase through the Maritz Co., the house furnishing the prizes and promotional material, gifts at wholesale prices. Our first campaign ... cost \$2,039 ... The enthusiasm shown ... is quite encouraging ..."

**Colonial Airlines** (A. M. Hudson, vice president-public relations): "We ... have set up a commission plan for employees other than sales for all bookings for our Bermuda service that are turned over to the reservations department. This plan has worked out very well ... I believe this commission bonus plan which pays off in cash rather than in prizes ... is the best incentive."

**Pioneer Air Lines** (Harding L. Lawrence, vice president-traffic): "A good incentive sales contest is the answer to a sales manager's prayer ... We most certainly would not favor its elimination ... We plan to have a 90-day sales contest starting in early spring ... In the past, several ... contests were for the promotion of passenger and freight sales with the prizes varying from cash awards to all-expense tours. Since Pioneer inaugurated service ... it has had a monthly contest for new and productive ideas. This program has proved very productive ... We have under advisement now certain benefits to our sales personnel for the promotion of special charter flights, rent-a-car, credit cards, etc."

**Southwest Airways** (R. E. Costello, assistant traffic manager): "During 1949 Southwest ... joined with Pan American and again with United ... in two separate joint sales contests ... open only to Southwest ... station managers ... Each contest ran six for six weeks and each offered a prize of two round-trip tickets from San Francisco or Los Angeles to Honolulu plus special hotel rates, sightseeing trips, etc. The winning station manager also received an additional week's vacation in which to enjoy his trip."

"The contests were limited to station managers because we felt that ... the other station employees would be given an incentive to strive for station managers' positions ... It had exactly the effect desired ... Points were awarded in certain categories; for example, increase in Southwest sales at the station, increase in Pan American/United sales, increase in travel agents' sales, Pan American/United movie showings, window displays, addresses to organized groups, etc ... Results were very satisfactory ... Southwest ... has made plans for a new contest ... joining with American ... in promoting travel to

(Continued on Page 47)

## Timetables

Two airlines, by pure coincidence, came out with new and different timetables on Mar. 1. Both were complete departures from conventional form. **Western Air Lines** said: "For the first time in the history of transportation, land, sea, or air, a timetable that can be easily read and immediately understood." It's in the form of a map of the WAL system, with arrowed lines denoting trips, arrival and departure times listed at each station, and trip numbers boxed on the lines—the flow-chart method. Color of the line signifies equipment. Fares and interline connections are listed in conventional form on the reverse side. We'll be interested in the reaction ... Other company was **Piedmont Airlines**. It's using a form resembling a fare table, with names of cities down the side and across the top. You locate the city from which you're departing in the vertical column, and destination in the horizontal column. Follow the columns across and down and the block formed by their intersection contains departure time from city of origin and arrival time at destination for all trips, plus one-way and round-trip fares. A disadvantage is that it doesn't list intermediate stops, and it would be hard to tell which is the best flight. Piedmont, however, reports a number of favorable comments from passengers.

## Passenger Service

Recently we told **American Airlines** of a first-rider who was going out on one of its Washington-Chicago DC-6 flights. Later, we checked back with the first-rider, who told us that he had received AAA-1 treatment. Capt. W. R. Graves spent considerable time talking with him, and the stewardesses took care of his every need. His reactions as a first-rider are interesting. He was particularly impressed with the sales-mindedness and public relations-mindedness of Capt. Graves and his crew, and how proud they were of their equipment. When he left the plane, the stewardesses reminded him that his next trip should be on American. The whole thing was done with such finesse that the other passengers didn't realize he was a first-rider—he didn't stick out like a sore thumb. His return AA flight was canceled because of the strike, and he flew United. When the UAL agent noticed the AA ticket he good-naturedly tut-tutted our friend for not flying UAL in the first place. So he's convinced the airlines are sales-conscious.

**National Airlines** is serving drinks on its New York-Miami deluxe DC-6 Star flights. You get a 2-oz drink for \$1, and we're told that the bar is making a profit. Drinks are only served while the flights are over the ocean, to avoid possible legal difficulties ... **United Air Lines** has employed and trained eight Hawaiians to serve as stewards on its California-Hawaii Stratocruiser flights. It's the first time UAL has used stewards. Cabin crew consists of two stewardesses and one steward.

## Sales Promotion

**Braniff Airways** sends us a copy of its "International Travelog," a comprehensive collection of information that travel agents and others can use to sell Braniff. It's well done ... **American Airlines** is increasing advertising insertions in AA city newspapers, providing additional support for competitive selling. No increase in national advertising ... American has issued a new edition of its well-known "International Shipping Guide" ... Congratulations to Keith Kahle, president and general manager of **Central Airlines**, on some nice-looking promotional material. Eye-catching signs are "If It's Important, Send It Air Mail," and "For Your Next Trip Anywhere, Fly On Central Airlines."

## New Services, Traffic and Tours

**Continental Air Lines** starts service about Apr. 1 to Trinidad, Raton, Socorro, Hot Springs and Las Cruces ... **Slick Airways** is now serving Chicago through Midway Airport as well as O'Hare International Airport ... **All American Airways** started service Mar. 1 on its alternate route between Pittsburgh and Washington via Hagerstown, Johnstown and Altoona, two eastbound flights and one westbound daily ... **Pan American Airways** on Mar. 15 starts non-stop flights Stuttgart-Prague, Frankfurt-Damascus and Frankfurt-Istanbul ... **Northwest Airlines** on Mar. 1 increased Twin Cities-Chicago Stratocruiser flights from two to three. A fourth flight will be used on holidays and weekends.

**Pan American** has increased Miami-Jamaica frequency to 13 round-trips weekly. ... Company's Miami-Havana flights have been upped to 14 weekly ... **British Overseas Airways Corp.** puts Boeing Stratocruisers on Montreal-London Apr. 2, two round-trips weekly. There will also be two additional flights with Constellations.

**Braniff Airways** started weekly DC-4 service on Mar. 6 to Asuncion, Paraguay ... **American Airlines** is offering 21 air tours between the U. S. and Europe including a seven-day all-expense Rome trip for \$580 ... **Pan American** is offering a seven-day-all-expense tour to Bermuda for \$156.

—ERIC BRAMLEY



## ...the oil industry's first flying laboratory!

During the late '20's, one of the best salesmen for the fledgling aviation industry was a tri-motored plane marked "Stanolind I," which traveled throughout the midwest giving hundreds the thrill of their first ride in a plane.

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QUAKER STATE Aero Engine Oils

**STANDARD OIL COMPANY (INDIANA)**

AMERICAN AVIATION®

Mexico and it will be open to all traffic employees. The prize will be . . . a one-week all-expense trip for two persons to Mexico . . ."

**West Coast Airlines** (Robert England, general traffic and sales manager): "We are currently using . . . an incentive bonus plan which includes all station and city ticket office personnel and managers . . . The quota was set at a 5% increase in business in 1949 over 1948 . . . I feel that it has been most worthwhile . . ."

**All American Airways** (Robert Rowley, public relations manager): "AAA is using a quota program, and has also run a tie-in contest with British Overseas Airways Corp. to encourage international sales, with two free trips to Bermuda as the prize. Under the quota plan, if a station exceeds its quota by at least one passenger, each station agent receives a \$10 bonus, and for each 10% over, a dollar more."

**Trans-Texas Airways** (S. B. Danilow, information and public relations director): "During 1949 we offered \$20 per man per station for the station that went over its assigned quota on a percentage-wise basis . . . Cash awards during 1949 (were) approximately \$500 . . ."

**Wisconsin Central Airlines** (Hal Carr, executive vice president): "No extensive program in 1949, but one will be started Apr. 1. There will be a cash prize of about \$15 to each of the agents in all stations exceeding their quota."

**Robinson Airlines** (J. L. Starkweather, general traffic manager): "Has not had a program in the past but 'undoubtedly we will have to develop some sort of incentive in the future.' Company has a 'good cooperative spirit among stations due to our publication of sales by each office . . .'"

## Trans-Canada Reports 23% Traffic Increase For 1949

Trans-Canada Air Lines carried a record volume of traffic on its domestic and overseas routes in 1949. More than 690,000 passengers flew with TCA in 1949, a 23% increase over 1948; air cargo and air express together exceeded 3,600,000 ton-miles, up 55%, while mail was over 3,900,000 ton-miles, almost double the 1948 total, TCA's year-end summary said. "In general . . . 1950 will resemble 1949 in its emphasis upon further quality rather than expanded scope of air operations," it added.

### CAB CALENDAR

Mar. 15—(Docket 4199) Hearing in Arrow Airways Enforcement Proceeding. Tentative. Examiner Richard A. Walsh.

Mar. 16—(Docket 2864) Oral argument before the Board on application of Chicago and Southern Air Lines, Inc. to add Chicago as a co-terminal point on its international route. 10 a. m., Room 5042, Commerce Building, Washington.

Mar. 27—(Docket 4194) Hearing in National Travel Club Enforcement Proceeding. Tentative. Examiner F. Merritt Rubien.

Apr. 10—(Docket 2824 et al.) Hearing in Florida-Bahamas Service Case; Mackey Air Transport et al. Tentative.

Apr. 17—(Docket 4161) Hearing in enforcement proceeding against Trans American Airways, Great Lakes Airlines, Golden Airways, Edward Ware Tabor, and Sky Coach Airtravel. Tentative. Examiner Barron Fredricks.

## Airline Commentary

By Eric Bramley



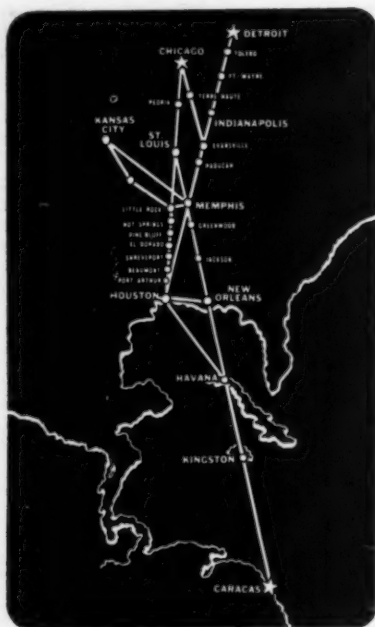
**I**F YOU want a sales lead, read on. We have here, strangely enough, a letter from a funeral director—an airminded funeral director, Jim Maher, of New Brunswick, N. J. A few weeks ago, he relates, "a clergyman died in New Brunswick, and we ordered a casket for him from the Boston Casket Co., and advised them to ship it via Eastern Air Lines air cargo. Instead of being shipped to us, it was consigned to a jobber in Perth Amboy, N. J., about 12 miles away. When I found out about this, I called Eastern and had it delivered directly to us. Everything went along all right until the jobber dropped in to see me. He then told me about the trouble he had with the F.B.I. They couldn't understand an empty casket being shipped by air, and thought maybe it contained the million dollars stolen from Brinks in Boston, which of course, fortunately or unfortunately, it didn't contain. That part of the story amused me, but it made me understand how it could happen because it is unusual to ship an empty casket that way. It would seem that the majority of funeral directors, manufacturers and air cargo men haven't looked into this field. It cost us \$6.60 to move the casket by air, and an average of \$8.41 by rail freight—not rail express, which would have been even higher." So there you are. Bodies are frequently shipped by air (a practice that Maher highly endorses) but maybe the "empty casket" field needs exploring. He points out that it would enable funeral directors "not to have too much money tied up in inventory . . . and from the manufacturers' point of view, it puts him in the position of having a warehouse in each city that has an airport." Sounds like a good source of business.

Seems that we have caused a lot of people to get out their pencils and do some figuring. Now they want the correct answer. In the Feb. 15 issue we quoted a problem, concocted by John Brawley, of TWA in St. Louis, involving a family of seven traveling on a family plan day. We can't reprint the entire problem, but it got more and more complicated as the trip progressed, with some of the family deplaning en route, another member getting married, and part of the group finishing the trip by train following a cancellation. The problem was to compute the total fare, without tax. The answer is \$416.05, and the authority is Bob Whyatt, TWA senior accountant. The item has even been the subject of discussion at some airline sales meetings, and one vice president-traffic and sales told us that he called in his tariff man to give him an answer. It took this expert about 20 minutes, and the vice president's cryptic comment was: "Look at the mess this industry has gotten itself into." We've had a number of phone calls about the problem, also some letters, the cleverest of which came from D. W. Palmer, lead telephone sales agent for United Air Lines in Washington (he was \$4.80 under Whyatt's figure). And a note to Richard Aime, of Eastern's tariff department: we don't have a detailed breakdown of the computations, but your assumptions must have been wrong. Anyway, the matter's now settled. Were you correct?

Wayne Parrish, our editor and publisher, took a recent trip abroad with TWA (see En Route on page 62). One of the spots visited was Madrid, where he picked up a menu from the Montestoril Restaurant, near TWA's downtown office. It says on the front of the menu, in English, that the restaurant is "recommended by TWA." Inside, it says "desayuno especial a la TWA (TWA breakfast)." So we eagerly hurried on to see what delicious items were available. But, doggone it, the whole darned thing was in Spanish. Please, TWA, won't you ask 'em to include an English translation for dummies like us who don't speak Spanish? There are probably a lot of us, and we'd like to know what we're getting to eat. TWA's breakfast, for example, was "escalope de ternera a la parrilla, huevo frito con bacon, patatas paja y ensalada de tomate." We can make out a couple of words, but it's tough, brother, tough.



# FLY C & S DIRECT



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General Office — Memphis, Tenn.

## Airline People

### ADMINISTRATION

**Amos Culbert**, who joined Northwest Airlines last month as head of the traffic department, has been named vice president-sales, and the traffic department has been redesignated as the sales department.

**John M. Wallace** of Salt Lake City; **Sidney F. Woodbury** of Portland, Ore.; **Hector C. Haight**, regional manager, RFC, Los Angeles; **Alexander Warden**, Great Falls, Mont., and **Marvin W. Landes**, vice president-service, Western Air Lines, were elected directors of WAL in an expansion of its board from five to ten members.

**R. D. Hager**, assistant to the president of Piedmont Aviation, Inc., since June, 1947, and a director for the past year, has been elected vice president-traffic and assistant to the president.

**Cecil A. Beasley, Jr.**, Washington attorney who represents Southern Airways before the Civil Aeronautics Board, has been elected a director of the company and also assistant secretary. Other new directors are: **Elton B. Stephens** and **Ernest H. Woods**, both of Birmingham, and **Robert Z. Cates** of Spartanburg. **F. L. McLeod** has been elected assistant treasurer of the company.

### OPERATIONS-MAINTENANCE

**Thomas J. Callahan** has been appointed superintendent of passenger and cargo service for American Overseas Airlines, a newly created position. He has been with the company since 1940 and has served recently as assistant to the assistant director of passenger and cargo service-overseas and as supervisor of cabin service.

**James T. Lynch** has been promoted from director of stores to director of planning and controls for the maintenance and supply department of American Airlines, succeeding **John R. Wiley**, who has left the company. **Eugene V. Hanley**, former assistant director of stores, moved up to Lynch's old position.

**J. M. Womack**, former station manager for Pioneer Air Lines at Albuquerque, has transferred to Dallas in the same capacity, replacing **Pat H. O'Donnell**, who resigned to enter school. **Herman Adcox**, former Santa Fe station manager, has been transferred to Albuquerque.

**Captain J. J. Moll**, oldest KLM Royal Dutch Airlines pilot on the Indonesian route, has been promoted to the rank of Commodore. This is the first time KLM has granted that rank. Moll is now on the line's advisory board.

**Joe W. Fowler** has replaced **Herman Adcox** as station manager for Pioneer Air Lines in Santa Fe. He formerly was manager at Roswell.

**Iowanna Meredith** has been promoted from assistant chief hostess to chief hostess for Mid-Continent Airlines. She succeeds **Mrs. Beth Renfro Ingram**, who has resigned.

### TRAFFIC & SALES

**Harold R. Watson**, formerly assistant to Eastern Air Lines' general sales manager, has been promoted to conventional sales manager. He joined EAL in 1940 as a courier at Newark Airport.

**Norman Kidd**, formerly city sales manager for Western Air Lines at Oakland, has been promoted to district sales manager of the company's newly formed district sales area encompassing the East Bay area and nine northeastern California counties. **Ken Fraser**, formerly city sales manager for Long Beach, heads the new district sales area encompassing the Los Angeles Harbor area, the South Bay communities and Orange county.

**William A. Perry** has been promoted from agency sales representative for National Airlines to manager of agency sales. He succeeds **John M. Stoddart**, recently named manager of NAL's advertising department.

**Robert P. Pheasant** is the new district sales manager for Pacific Northern Airlines at Juneau, Alaska. He has been PNA traffic representative in Cordova for the past year. **Clarence T. Perry** takes over the job in Cordova.

**G. L. Leiendecker**, formerly in charge of United Air Lines' Vancouver sales office, has taken charge of the Hollywood office, succeeding **Larry Kent**, resigned. **W. H. O'Donnell**, formerly district traffic and sales manager at Spokane, takes over at Vancouver, and **Rene E. Siebert**, formerly of the Portland traffic staff, succeeds O'Donnell in the Spokane sales post.

**Margaret McEachern** has been appointed a member of Northwest Airlines' publicity and news service department, to specialize in promoting the feminine interest in air transportation. **Allan J. Wash, Jr.**, NWA west coast publicity representative for the past two years, has been named assistant to the director of publicity.

**Mrs. Martha Leonard Zahrt**, editor of Braniff Airways' monthly employee publication, the "B-Liner," has been named as publicity assistant in the public relations department of the company.

**William C. Kelley**, former assistant district traffic manager for Northwest Airlines in Detroit, has been assigned as a traffic representative in MWA's Honolulu traffic office.

**Philip M. Werner** has been named manager of advertising, entertainment and sports sales for the Chicago district traffic and sales office of United Air Lines.

## U. S. International Airline Traffic for December

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	U. S. MAIL TON-MAILES	FOREIGN MAIL TON-MAILES	EXPRESS TON-MAILES	FREIGHT TON-MAILES	TOTAL TON-MAILES	REV. TRAFFIC	AVAILABLE TON-MAILES	% AVAILABLE TON-MAILES	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	6,175	4,576,000	9,144,000	50.04	14,128	4,699	1,022	90,191	605,055	1,161,526	52.09	198,297	181,287	100.00	
Amer. Overseas	8,337	12,123,000	21,390,000	56.68	21,570	69,070	282,249	-	1,916,174	3,064,815	62.52	476,340	499,686	91.11	
Boeing	1,306	3,027,000	8,037,000	37.66	4,837	955	-	45,104	342,560	1,129,750	30.32	171,202	171,222	99.99	
C & S	2,485	2,672,000	7,623,000	35.05	3,241	876	-	40,466	322,307	914,762	35.23	185,181	184,496	100.00	
Colonial	565	447,000	1,568,000	28.51	1,520	77	-	3,478	53,413	230,056	23.22	35,629	40,298	88.41	
Eastern	1,625	1,690,000	3,278,000	51.56	8,561	-	-	86,053	277,605	525,956	52.78	78,922	64,480	100.00	
National	5,078	1,402,000	3,499,000	40.07	1,236	-	28,662	-	173,165	500,664	34.59	70,146	64,976	98.59	
Northwest	3,239	6,127,000	11,540,000	53.09	247,348	21,285	10,924	373,782	1,331,049	2,067,730	64.37	497,786	489,113	99.40	
Panagra*	8,348	9,344,000	17,862,000	52.31	76,418	27,158	155,191	-	1,248,836	2,395,010	52.14	497,505	490,978	98.95	
PAA	56,445	46,403,000	91,253,000	50.85	361,275	93,230	2,096,728	38,253	7,418,030	14,312,386	51.83	2,608,948	2,235,066	98.09	
Latin Amer.	8,138	20,923,000	38,983,000	53.67	386,928	126,563	729,770	-	3,581,548	6,578,542	54.44	1,165,172	1,231,688	89.17	
Atlantic	6,606	17,296,000	37,686,000	45.50	637,865	89,811	396,508	-	2,914,413	5,762,047	50.58	941,840	934,624	99.41	
Pacific	2,580	2,705,000	4,851,000	55.76	66,744	-	291,494	-	639,893	1,142,368	56.01	181,800	182,942	96.72	
Alaska	6,113	16,988,000	31,776,000	53.46	791,674	165,709	468,299	-	2,908,785	4,514,642	64.43	965,544	950,728	96.74	
TWA	118,514	3,538,000	8,798,000	40.21	128,597	-	26,695	-	530,451	999,720	53.06	213,600	213,600	100.00	
United	1,474	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTALS	118,514	149,261,000	297,288,000	50.20	2,506,110	599,393	4,487,542	677,327	24,263,284	45,299,994	53.56	8,287,912	7,935,186	96.73	
* Figures for Panagra are preliminary.															
** Includes air parcel post.															

\* Figures for Panagra are preliminary.

\*\* Includes air parcel post.

## U. S. Feeder Airline Traffic for December

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON MILES	EXPRESS TON MILES	FREIGHT TON MILES	TOTAL TON MILES	REV. TRAFFIC	AVAILABLE TON MILES	% AVAILABLE TON MILES USED	REVENUE PLANE MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All Amer.	6,353	853,000	4,781,000	17.84	5,327	11,194	. . .	99,957	519,136	19.25	227,691	263,776	85.97	
Central	298	37,000	393,000	9.41	1,911	. . .	. . .	5,459	39,465	13.83	136,636	165,168	82.72	
Challenger	1,687	506,000	1,945,000	29.46	3,729	3,172	6,315	64,015	208,114	30.77	97,250	104,722	93.13	
Empire	2,528	642,000	2,018,000	31.81	2,299	996	. . .	64,457	200,375	32.17	96,106	93,372	96.15	
Mid-West	740	46,000	368,000	12.54	1,388	. . .	. . .	5,192	39,066	13.29	91,922	115,915	79.33	
Monarch	2,085	515,000	2,551,000	20.19	2,611	1,779	7,005	61,115	237,411	26.58	141,740	162,192	87.38	
Piedmont	7,077	1,613,000	5,999,000	27.30	3,850	5,470	6,544	170,367	619,054	27.52	281,388	297,290	94.50	
Pioneer	7,953	2,170,000	7,550,000	28.74	10,878	4,540	9,210	242,957	798,671	30.42	313,943	315,580	97.88	
Robinson	2,971	428,000	1,776,000	24.11	2,457	3,826	1,876	44,676	203,033	21.92	91,592	96,686	91.83	
Southern	1,605	267,000	7,050,000	8.75	4,589	3,188	. . .	33,300	220,105	15.13	145,476	168,144	86.52	
Southwest	7,253	1,799,000	4,124,000	33.44	7,010	3,525	8,792	157,664	412,338	38.24	196,258	198,574	97.47	
Trans Texas	4,544	1,035,000	5,433,000	19.05	5,436	3,168	4,824	117,541	367,078	32.02	258,233	264,430	97.18	
Turner	347	69,000	461,000	15.04	15	384	196	7,035	48,987	14.36	22,891	29,636	70.69	
West Coast	3,314	449,000	1,920,000	23.39	1,178	774	. . .	43,645	174,222	25.05	91,408	100,564	89.58	
Wiggins	133	12,000	112,000	10.71	211	. . .	. . .	1,469	12,327	11.91	26,897	37,842	67.19	
Wis. Cent.	2,471	393,000	1,231,000	31.93	2,656	2,677	. . .	42,194	125,941	33.50	154,443	185,070	83.45	
TOTALS	50,959	10,414,000	43,622,000	23.89	55,455	44,693	44,762	1,163,063	4,226,143	27.52	2,373,864	2,601,411	90.42	
Helicopter Mail Service														
Helicopter	. . .	. . .	. . .	. . .	686	. . .	. . .	686	2,278	30.11	24,159	28,224	85.60	
Air Serv.	. . .	. . .	. . .	. . .	4,195	. . .	. . .	4,195	10,933	38.37	28,179	30,043	92.77	
Los Angeles	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

## U. S. Feeder Airline Traffic for 1949

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON MILES	EXPRESS TON MILES	FREIGHT TON MILES	TOTAL TON MILES	REV. TRAFFIC TON MILES	AVAILABLE TON MILES	% AVAILABLE TON MILES	REVENUE PLANE MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All Amer. <sup>(1)</sup>	73,576	9,861,000	45,073,000	21.87	41,454	65,488	• • • •	1,070,948	4,478,909	23.89	2,575,903	2,777,299	92.54	
Central <sup>(2)</sup>	823	100,000	1,049,000	9.53	3,972	• • • •	• • • •	13,400	135,129	9.91	351,413	393,556	90.33	
Challenger	30,370	8,322,000	30,692,000	27.11	37,383	33,330	76,396	983,727	3,260,349	30.15	1,523,530	1,596,244	95.23	
Empire	34,352	7,571,000	22,640,000	33.44	20,492	14,446	• • • •	749,699	1,991,587	37.61	1,077,855	1,088,896	97.51	
Florida <sup>(3)</sup>	3,026	409,000	1,842,000	26.53	1,812	660	• • • •	41,827	168,979	24.75	193,120	192,970	99.47	
Mid West <sup>(4)</sup>	533	73,000	643,000	11.15	2,273	1	• • • •	8,266	69,332	11.92	160,590	190,527	84.21	
Monarch	30,679	7,735,000	31,951,000	24.20	25,551	20,329	87,236	910,442	2,900,697	31.37	1,757,790	1,873,240	93.11	
Piedmont	86,292	18,578,000	64,161,000	28.95	31,229	41,129	62,414	1,912,709	6,566,880	29.11	3,057,300	3,113,496	97.97	
Pioneer	105,356	29,216,000	92,633,000	31.53	90,021	32,766	77,843	3,000,525	9,829,063	30.52	3,863,927	3,950,474	96.55	
Robinson <sup>(5)</sup>	42,755	6,274,000	17,946,000	34.96	18,489	5,228	16,472	574,690	1,944,446	29.52	915,453	968,159	92.35	
Southern <sup>(6)</sup>	10,665	1,753,000	17,813,000	9.84	18,495	15,765	• • • •	208,477	1,239,705	16.32	819,369	868,481	94.35	
Southwest	115,918	21,239,000	51,381,000	41.33	51,136	34,199	90,117	2,306,119	5,097,421	45.24	2,417,094	2,436,720	98.23	
Trans Texas	49,924	11,618,000	61,165,000	18.99	59,143	22,772	25,319	1,238,582	4,540,199	27.26	2,911,602	2,967,198	98.01	
Turner <sup>(7)</sup>	586	109,000	767,000	14.21	102	446	196	10,846	87,555	12.38	37,470	47,794	73.75	
West Coast	65,899	8,716,000	26,231,000	33.22	9,867	11,679	• • • •	804,385	2,510,226	32.03	1,249,062	1,296,344	95.30	
Wiggins <sup>(8)</sup>	430	43,000	291,000	14.77	515	• • • •	• • • •	4,467	30,503	14.64	71,686	96,226	72.10	
W. Cent.	32,627	4,943,000	13,641,000	36.23	20,594	22,305	• • • •	495,917	1,390,363	35.61	1,633,936	1,618,971	89.76	
TOTALS	683,811	136,560,000	479,619,000	28.47	432,628	320,143	435,993	14,328,026	46,241,343	30.98	24,617,100	25,678,595	95.25	
Helicopter Mail Service														
Helicopter	• • • •	• • • •	• • • •	• • • •	3,424	• • • •	• • • •	3,424	9,240	37.05	72,433	78,266	92.54	
Air Serv. <sup>(9)</sup>	• • • •	• • • •	• • • •	• • • •	42,313	• • • •	• • • •	42,313	132,577	31.91	339,425	352,167	96.53	
Los Angeles	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •	• • • •
1) Began passenger service March 7, 1949.														
2) Began operations September 15, 1949.														
3) Terminated operations at end of March, 1949 in accordance with CAB's decision not to renew airline's temporary route certificate.														
4) Began operations October 21, 1949.														
5) Began operations June 10, 1949.														
6) Began operations November 12, 1949.														
7) Began operations September 13, 1949.														
8) Began operations August 20, 1949.														

1) Began passenger service March 7, 1949.

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4) Began operations October 31, 1949.

5) Began operations June 10, 1949.

6) Began operations November 10, 1949.

7) Began operations September 10, 1949.

8) Began operations August 20, 1949.

# BETTER SERVICE WELCOMES YOU AT THIS MODERN AIRPORT!



**JULIUS GOLDMAN**, President and General Manager, Revere Airways, Inc., which own and operate Boston-Revere Airport. He is a member of NAA, Q8, AFA, and Kiwanis.

## BOSTON-REVERE AIRPORT, REVERE, MASS.

**THAT FEELING OF WELCOME** is strong at Boston-Revere Airport, where the service and facilities mean real comfort and convenience to flyers. It is the largest close-in private airport and provides the only seaplane base in the greater Boston area. It is only four miles from downtown Boston and is located directly on main highway, C-1, connecting with U. S. Route 1. A good restaurant...complete maintenance and repair facilities...and convenient transportation are available at this airport—where good service teams up with high-quality Esso Aviation Fuels and Lubricants.

**SINCE KITTY HAWK**, Esso Aviation Products have been the *first choice* of many leading airlines and private flyers. Proved by more than 40 years of actual flying...backed by continuing research in one of America's largest and most modern aviation petroleum laboratories...Esso Aviation Products are famous for dependable performance!





# AIRPORTS

Including Features Formerly in AIRPORTS AND AIR CARRIERS Magazine

## Inexpensive Construction:

### NWA Stratocruiser Service Hangars at Minneapolis

By WILLIAM D. PERREAULT

Northwest Airlines is now finishing up the interiors of two new hangars recently constructed on Wold-Chamberlain Field in Minneapolis and will soon start construction on the third unit which will complete its immediate program of building. The three hangars will supplement some 45,000 square feet of space rented by NWA from the Metropolitan Airports Commission in the form of two small hangars.

Built for use as aircraft servicing hangars, as differentiated from overhaul activities which NWA carries on a Holman Field, St. Paul, the new facilities will provide about 98,000 additional square feet of shelter. The largest of the three hangars, hangar 4, has 35,000 square feet of floor space and will house two Boeing Stratocruisers.

Hangars 3 and 4 will each handle three

Martin 2-0-2's and one Douglas DC-4 simultaneously. Floor space in each of these hangars is 31,500 square feet. All three units are short-term buildings, to be written off in about ten years, but they provide immediate relief from the snow and ice problems which are quite serious in the Twin Cities area.

It is interesting to note that the permanent hangar constructed by NWA at Seattle last year, and housing 30,000 square feet of floor space, cost \$1,250,000. This compares with \$1,500,000 for the 98,000 square feet provided in the new facility. The difference is largely due to the inexpensive construction used.

#### **Crowded Overhaul Facilities**

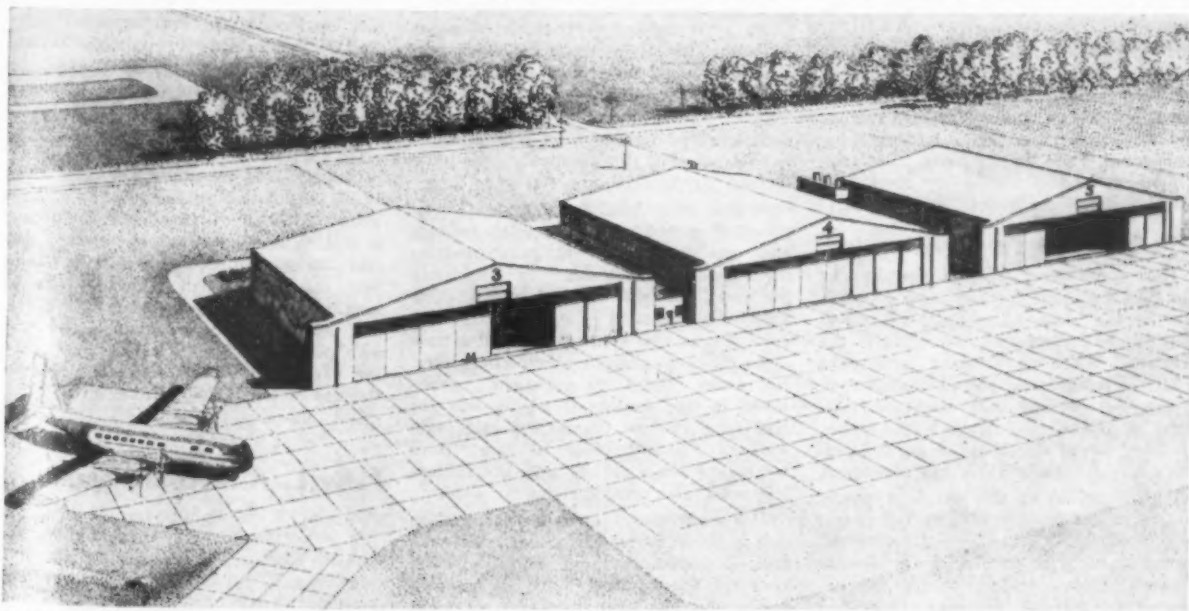
NWA has rented 20 acres of land, on which the hangars and associated apron areas are located, from the MAC on an effective 30-year lease and has an option on 80 additional acres which it can exer-

cise any time within five years. During this period NWA is expected to decide on the location of its overhaul facilities.

At present all of Northwest's overhaul activities are located at Holman Field but these facilities are already overcrowded. As overhaul work on the Boeings increases and the rest of the fleet is brought into full utilization, a sharp increase in facilities will be required. Estimates are that it will require some 750,000 square feet of new hangar area to fill the need and that minimum cost of these facilities will be about \$10 million.

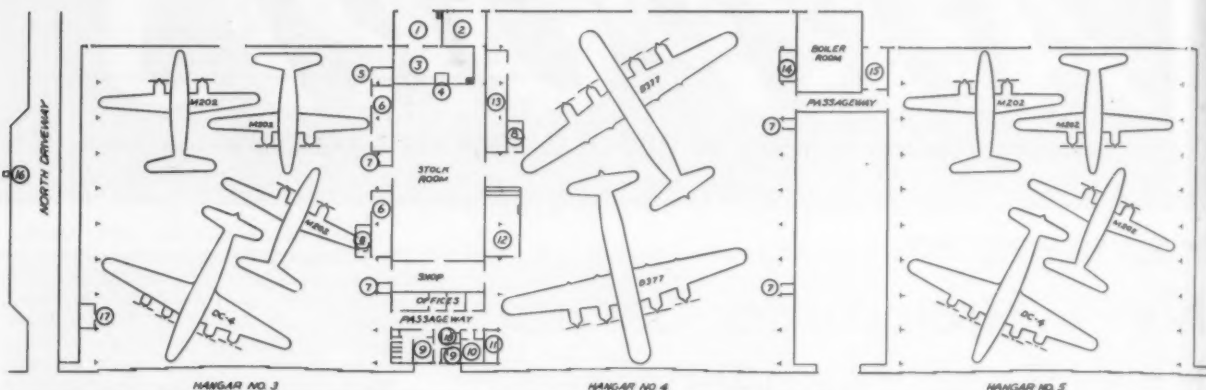
Northwest will be the last of the big five operators to choose an overhaul site. NWA has its roots pretty deep in the Twin Cities area but adequate facilities are not immediately available there. Regardless of where NWA locates its overhaul shops, construction will be required on the order indicated. The construction of the servicing hangars does not directly affect the final choice of the overhaul site for no matter where the airline locates, there will be a continuing need for the Minneapolis service base.

While basic construction of the three new hangars is relatively inexpensive, the planning provides some useful re-



TWO OF THE three hangars shown here are already completed at Northwest Airlines' base at Wold-Chamberlain Field in Minneapolis. There are positions for six airplanes on the ramp in front of the hangar. The position occupied by the Boeing Stratocruiser in this

sketch is equipped with underground service equipment including AC and DC power, fuel, oil, ADI fluid, etc. Planes moved from the service hangars onto the ramp are serviced and run-up at this point prior to dispatching to the gate position.



THIS FLOOR plan of the new NWA hangars shows the utilitarian aspect of the facility. The center hangar, hangar 4, is the largest of the three and will normally be used for two Boeing Stratocruisers. Hangar 3 will normally be used for servicing Douglas DC-4's and Martin 2-0-2's. The location of the stock room between these hangars makes it possible for one facility to conveniently serve both shops. Hangar 5 will primarily be used for cleaning, polishing and general storage of airplanes out of the snow and cold.

lationships. For instance, in the area between hangars 3 and 4 a 200 x 50 foot stock room is provided. From this central stock supply, service windows are provided into both of the hangars where the majority of servicing will be accomplished. Hangar 5 serves more as an indoor storage space and consequently has little need for stock supplies.

At either end of the stock room area, between hangars 3 and 4, various shop facilities are provided. On the street side are a truck loading dock, volatile storage area, shipping and receiving room and hydraulic lift. On the apron end of the stock room are maintenance offices, a small work shop, utility room, toilets and washrooms.

Hangar 3 has a timekeeping office, locker room, transformer cribs, work control stations and foremen's office. Hangar 4 has a similar foremen's office and work control station, a battery shop, tool room and lunch room. Between hangars 4 and 5 the boiler room and plant maintenance rooms are located.

### One-Stop Pit Servicing

The apron area outside the hangar has parking space for six Stratocruisers. One of the spots, adjacent to hangar 3, is equipped for complete servicing of the airplane. When an airplane is brought from the hangar and placed on this spot, it can be serviced with fuel, air, ADI fluid, engine oil plus hot and cold water, all from stores buried in the ground pits, the type pit which NWA has pioneered.

Also supplied in this pit is a power source of 1,500 amps, 28-volt DC power and 500-amp DC power, 110-220 AC power as well as provisions for sewage disposal. No auxiliary trucks are required to provide the many servicing needs, manpower requirements are at a minimum—and the airplane can move directly from this run-up spot to the terminal gate. The oil and anti-detonant

fluid installations are the first of their type. Hot water is circulated around the critical portions of the oil supply system to prevent congealing during cold weather.

The hangars themselves are constructed of steel frames covered with corrugated sheet and Coralux. Coralux is a glass fibre laminate which closely resembles corrugated sheet stock in appearance but which provides good light transmission through its opaque surfaces.

### No Windows

NWA has installed a wide strip of coralux around the perimeter of the hangars about twenty feet above the floor. It is applied with studs in much the same fashion as the sheet stock and eliminates need for windows. Its rugged construction permits application in this manner without need for special frames and resultant upkeep; and it provides a simple method of insuring adequate natural light.

Strip-type insulation has been attached directly to the metal ceilings and walls. Three temperature-controlled, oil-fired hot water boilers supply the heat for the three hangars. The automatic controls for these boilers operate one, two or three units at a time depending on outside air temperatures. Hot water (about 200 degrees F.) generated by the boilers is piped into six spot-type heaters, three on each side wall of the individual hangars. Here large fans force air through the radiating pipes and onto the hangar area.

Three additional units are located in the apex of the ceilings, one near each end of the hangar and another in the center. These units have their own radiating units but also serve to force ambient warm air from the ceiling area down onto the working level. The overhead blowers adjacent to the main hangar doors are automatically switched

### LEGEND

1. Truck Dock
2. Volatile Storage
3. Shipping and Receiving Room
4. Hydraulic Lift
5. Timekeeping Office
6. Locker Rooms
7. Transformer Cribs
8. Work Control Stations and Foreman's Offices
9. Toilets and Washrooms
10. Utility Room
11. Battery Shop
12. Tool Room
13. Lunch Room
14. Main Electrical Distributing Room
15. Plant Maintenance Shop
16. Automobile Gasoline Pump
17. Apron Pit Pump Room
18. First Aid Station

off when the doors are started toward the open position so that warm air is not forced outside.

Space provided by these hangars will relieve the load on the two MAC-owned hangars rented by NWA. One of these has been sublet to Minneapolis-Honeywell Regulator Co. for its flight testing work. NWA cooperates with M-H by making many of their facilities available to the flight test group in addition to the basic hangar space.

On March 1 Minneapolis-Honeywell is expected to move its activities from 10,000 sq. ft. of space in hangar 1 to about 30,000 sq. ft. in hangar 2. Hangar 1 will then be converted for receiving and storing inbound cargo. To facilitate this NWA will construct special loading docks outside hangar 1 which will accommodate two trucks and one airplane. This is part of NWA's expanding cargo program which also calls for the use of two newly converted Douglas DC-4 all-cargo ships.

### New L. A. Airport Head

Merle W. Hemphill, former head of the airports division of the Civil Aeronautics Administration's Third Region in Chicago, has been named general manager of the Los Angeles Department of Airports, succeeding Clarence M. Young, who resigned last month to become a vice president of Pan American World Airways.



# The Birdmen's Perch

**Famous last words:** "I won't stall out, I've got too much air speed!"



You won't hear a crack like that from Air Force or Navy trained flyers, because they know you *can* stall at high speeds.

But—there are still plenty of lightplane pilots who figure that the phenomenon is restricted to high-speed planes.

Actually, you can hit a high-speed stall in any plane. This maneuver is seldom demonstrated in civilian flying because it's plenty rough on both plane and pilot.

**Always remember:** at a given air speed, you can curve the flight path of a given plane only so sharply. Try to exceed your plane's limitations and—tut-tut, such a promising pilot, too!

## AND NOW...

Leave us have a moment of silence for those embattled pilots who haven't yet

discovered the wonders of Gulfpride Aviation Oil—Series D!

Listen—you can hear the laborings of their tired engines on the way to overhauls.

What a pity some pilots don't know that Gulfpride Aviation Oil—Series D—is the world's finest detergent dispersant oil for horizontally opposed engines. It's the only aviation oil put through Gulf's exclusive Alchlor Process to remove extra carbon and sludge formers.

How sad these same pilots don't realize that Gulfpride Aviation Oil—Series D—could increase their periods between overhauls up to 100%!

Pass the crying towel, Maggie.



## LITTLE KNOWN FACTS DEPT.

Ah—but there's good news at LaGuardia tonight! If the lights burn a little later than usual, if a few scheduled flights fail to materialize, blame it all on A. P. Magner, Asst. Chief Dispatcher for Pan Am.

For his L.K.F. (with proof, mind you), this august personage has earned the most honorable Commission of Perch Pilot (br)—"bottom rung," that is.

Now, A. P., if you'll just forget your

ecstasy for a minute and come down from the chandelier, we'll make with your L.K.F.A.W.K.P. (For youse guys what



can read: Little Known Facts About Well Known Planes.)

"Due to fuel consumption, the Boeing Stratocruiser loses weight in flight at a rate equal to one adult passenger disembarking every 3 minutes."

Your Commission is en route, A. P., trot out the gilt-edge frame.

Hey, you, the guy weeping in his beer...

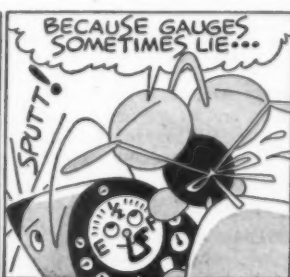
Don't remain unsung forever. Send your Little Known Facts About Well Known Planes—with PROOF—to this address:

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## AIRPORTS

# Airport News Digest

• CAA has tentatively agreed to a sharp boost in the rent it pays for space occupied by its Experimental Station at Weir Cook Municipal Airport, Indianapolis. Under the new contract, which must be approved by the Comptroller General, CAA will pay \$16,675 annual rent for 20 years and also will maintain the station buildings. It has been paying \$978 annual rent and operating the airport control tower in lieu of additional rent.

• Baltimore Municipal Airport has been renamed Harbor Field. It will be used for private and charter flying and National Guard and Naval Reserve flight training after the new Friendship International Airport is opened next summer. Karl Clarke, deputy airport manager for the city since last summer, has been named airport manager at a salary of \$5,900 and presumably will manage the new facility. The city is negotiating with several firms for overall concession privileges at the new field.

• San Francisco has dedicated a public helicopter landing area on a float adjacent to the city's historic ferry building. The heliport provides landing and parking space for 10 helicopters and will be used as a base for a projected aerial taxi service that will carry passengers to Treasure Island and Oakland as well as San Francisco Airport.

• The Alabama Department of Aeronautics will open for public use on April 16 the state's first public airport for recreational flying. It's at Fort Morgan State Park, near Mobile Bay and the Gulf beach. It will have a field house, two 1,800-foot landing strips and fueling service.

• United Air Lines and National Airlines are the latest carriers to sign the so-called Dewey Agreement for space and services at New York International (Idlewild) Airport. Agreements call for the Port of New York Authority to build hangars costing up to \$5,000,000 and \$1,200,000 for UAL and NAL, respectively, when they require them.

• A study of the acceptance rate of aircraft at a major terminal has been begun at San Francisco Airport by Dr. Maurice A. Garbell, a former director of the Arcata Landing Aids Experiment Station. The U. S. Weather Bureau is paying the cost of the study, which will require about five months to complete. Aim is to make it possible to lower the present standard interval of three minutes between successive landings of aircraft under instrument landing conditions.

• Creation of an independent, nonprofit authority to direct the development and operations of Sky Harbor Airport, as proposed by the Phoenix Aeronautics Commission, was turned down by the City Council. The airport is now operated as a city department with the Aeronautics Commission serving in an advisory capacity.

• Airport topics and airport people will take top billing at the Third Annual Wisconsin Aeronautics Conference at the Pfister Hotel, Milwaukee, March 22-23. There will be panels concerning the state's airport system, developing community interest in the airport, benefits of air transportation, airport maintenance and airport operation and management. Jennings Randolph, assistant to the president of Capital Airlines and president of the Airport Division of the American Road Builders Association, will be among the speakers.

• The Maryland State Aviation Commission is investigating possible means of financing the development of an airport master plan to provide a sound basis for development and expansion of aviation facilities in the state over a 10-year period. It is estimated the cost of the study would be about \$25,000.

• New Castle County Airport is seeking to guard against damaging action of jet fuel leakage on its principal taxiways by treating them with "jennite," a pastelike sealing material. After mixing the sealing material, airport maintenance crews had to apply it manually, pouring it on the taxiways and then spreading it with "squeeze" brushes. An Air National Guard unit at the field uses some F-84 jet fighters.

• Owners of television sets in the San Francisco Bay area got a good insight into airport control tower operations recently when Station KPIX televised a 15-minute program inside the tower.

## Advisory Group Names Present Airport Needs

Twenty-two separate recommendations, touching on such diverse subjects as loans for airport development, Federal maintenance for surplus airports, safety of aviation fuel tenders, airports for helicopters and positive control of airport traffic were submitted to the Civil Aeronautics Administrator last week by the Airport Advisory Committee.

A. B. Curry, chairman of the committee, in submitting the report to D. W. Rentzel, said he was aware that many of the recommendations are not directly related to airports, but the committee feels, he said, that "anything that affects aviation affects airports."

Curry also said the committee had requested him to inform Rentzel that each of them is prepared to serve on the working group of the recently created Airport Use Committee and is available "for any assignment you may decide to give them without compensation from the Federal government."

With regard to positive control of traffic at airports, which it listed as "one of the top problems of the industry today," the committee asked that it be furnished by the Administrator with all available material relating to his plan for implementation of air navigation aids to handle en route and terminal traffic, and by the military with its plans for the handling of its traffic at certain civilian airports, "in order that the soundest recommendations can be made" at the committee's next meeting.

## Chemical Process Solidifies Mud For Plane Landings

Civil and chemical engineers at the Massachusetts Institute of Technology have announced a new chemical process for the stabilization of soils which makes it possible to turn a muddy pasture into a stable, rubbery surface suitable for aircraft landings in less than five hours.

Based on an entirely new approach to soil solidification, the treatment can be used even on soils containing as much as 30% water by weight, enough water to make clay as soft as bread dough. The result, after a few hours, is a solid material of rubber-like consistency "well adapted to withstand heavy impact loads and to distribute static loads over an uneven foundation."

The M.I.T. committee said the drawback to the treatment is that the present cost of the necessary chemicals is high, but it added that there is reasonable hope that this cost can be reduced substantially through mass production methods in the manufacture of the chemicals.

MARCH 15, 1950

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# Fatal Pilot Error Accidents Analyzed in CAA Report

A strong case for the stall-resistant aircraft is made in a report entitled "The Human Equation in Aircraft Accidents" just released by the Civil Aeronautics Board. The report is an analysis of non-air-carrier fatal aircraft accidents in 1948 and contains the first safety comparison of stall-resistant aircraft such as the Ercoupe, Navion and Stinson Voyager with aircraft which will stall easily.

There were 850 fatal accidents in non-air-carrier flying in 1948, of which 758 were the result of pilot error. These personal flying pilot error accidents resulted in 1,268 fatalities. Approximately 75% of the pilot error accidents fell into three main categories: (1) operating recklessly; (2) failure to maintain flying speed; and (3) continued VFR into instrument weather.

(1) **Reckless operation** of personal aircraft accounted for 311 of the 758 fatal accidents involving pilot error, or 41% of all pilot error accidents. About half of the reckless flying accidents involved stalls and 86% of such accidents occurred while the pilot was "just plain showing off."

A typical instance was one in which a pilot with three friends aboard dove on another friend who was operating a tractor in a farm field. After several dives to within 50 feet of the ground, he pulled up into a steep climbing turn, stalled and crashed, killing all aboard. In another instance, a commercial pilot with over 2,000 hours was carrying a passenger and doing low altitude acrobatics. His final maneuver was a spin to an altitude too low to pull out.

## Private Pilots Predominate

Of 311 such fatal accidents resulting from reckless flying, 51 of the planes were piloted by commercial pilots. Private pilots were at the controls in 226 of the reckless flying accidents and student pilots were involved in 33 such accidents.

(2) **Failure to maintain flying speed** was the second main category of pilot error and accounted for 18.6% of the fatal pilot error accidents. The largest number of such accidents (39) occurred during takeoff climb and, since this figure does not include forced landings as a result of engine failure, the accidents appear to result from either carelessness or doubt on the part of the pilot as to when the plane would stop flying.

For example, a private pilot with over 100 hours was circling near the airport waiting for clearance from the tower to enter the traffic pattern. He allowed the aircraft to stall and was unable to recover in time. Another private pilot with

over 100 hours, lost on a cross-country flight, was circling a golf course at low altitude. He attempted to call to people on the ground to find his location, stalled in a turn and crashed.

During normal flight operations, 35 fatal accidents resulted from the failure to maintain flying speed; 27 occurred during landing approach and 14 occurred during attempted forced landings. In crop dusting, there were eight such fatal crashes, all stalls out of turns, one of which happened during takeoff climb with a heavily loaded aircraft. Six out of the 14 forced landings in which the pilots failed to maintain flying speed were caused by engine failure on take-off; seven during normal flight; and one during landing approach. About 15% of the pilots involved in these failed-to-maintain-flying-speed accidents were commercial pilots.

## VFR in Instrument Weather

(3) **Continued VFR into instrument flight weather** was the third main category into which the majority of the fatal pilot error accidents fell. The largest percentage of commercial pilots to be found in any of the categories is found in this group where 25% of the pilots involved held commercial pilot ratings.

Twenty student pilots, 97 private pilots and 21 commercial pilots took a chance on the weather and lost. In these accidents, one significant fact stands out: of 113 pilots, only seven had filed flight plans. Of the 106 who did not file flight plans, many were missing from several days to seven months and at least one

pilot survived the crash but died before his plane was located a month and a half later.

The CAB study states, "The experienced pilot will be the first to agree that it is bad business to continue VFR flight into instrument weather. But apparently too many of them seem to feel that occasionally it is all right for them to do it, because they are experts. Also, when a pilot flying VFR gets through some bad weather successfully, he is likely to have the feeling that it wasn't so bad after all. Each such brush with the weather is likely to make any subsequent weather flying seem less formidable. This in itself can make pilots feel that they are not getting into worse conditions than on former flights."

## Stall Frequency Significant

The remaining 13 categories of pilot error account for only 25% of the accidents and the largest category in this group, accounting for slightly more than 5%, is "failure to observe aircraft or objects." This included 26 collisions with fixed objects such as trees, ten of which occurred during crop dusting; 13 collisions with other aircraft, 11 of which occurred while both aircraft were in flight; and one inadvertent collision with the ground.

The most significant factor in this study of accidents is the frequency of stalls. During the period covered, 90% of all fatal non-air-carrier accidents were caused by pilot error and 75% of these errors fell into three main categories. In these three groups, 60% of the accidents involved stalls and resulted in 654 fatalities.

The overall average for single-engined aircraft in 1948 was one fatal stall for each 186 aircraft. However, the three highly stall-resistant types of aircraft in use in 1948 averaged only one fatal stall for over 800 aircraft.

## Fatal Pilot Error Accidents in 1948

Error	No. of Fatal Accidents	No. of Fatalities	Percent of Fatal Errors
Operating recklessly .....	311	512	41.0
Failure to maintain flying speed .....	141	210	18.6
Continued VFR into instrument weather <sup>1</sup> .....	113	216	14.9
Failure to observe aircraft or objects .....	40	60	5.3
Misjudged distance .....	25	67	3.3
Improper flight training or supervision .....	22	40	2.9
Exceeded stress limits of aircraft .....	19	40	2.5
Inadequate flight preparation .....	18	23	2.4
Inattentive—fuel supply and valves .....	12	15	1.7
Became lost (VFR) .....	9	12	1.1
Selected unsuitable terrain or runway .....	7	10	0.9
Failure to compensate for wind .....	5	5	0.7
Misuse powerplant controls .....	5	8	0.5
Improper level off .....	2	2	0.3
Failure to retract or extend gear .....	2	2	0.3
Other pilot causes .....	27	46	3.6
<b>Total .....</b>	<b>758</b>	<b>1268</b>	<b>100.0</b>

<sup>1</sup> VFR "Visual Flight Rules"



# For Local Operators

## 11½% of Airports Win Approval

Some 11½% of all airports in the United States are given "above average" and "superior" ratings for 1949 by members of the Aircraft Owners and Pilots Association. Certificates are being prepared for mailing in the Washington office on the basis of reports received from AOPA members, who fill out a rating card on airports they use. Of the 709 airports in the United States which will receive AOPA rating certificates, 151 were rated "superior" and 558 were rated "above average." California had 57 rated airports, the highest number of well run airports of any state, in the eyes of AOPA members. From now on, AOPA plans to issue its ratings of the 6,200 airports in the United States annually. . . .

AOPA has been making news with its charge that San Francisco municipal airport is violating the Federal Airport Act in discriminating against the rights of small private aircraft. A regulation recently established by city ordinance requires that an aircraft must have a rated cruising speed of at least 120 mph and the ability to stay at that speed in the traffic pattern to be permitted to land or takeoff without special permission from the airport manager. If the limitation of aircraft by rated cruising speed is in the interests of safety, AOPA officials point out, what about the F-84 Thunderjet which has an indicated airspeed with 92% power at 20,000 feet of 340 mph? These planes enter the traffic pattern at 200 mph. What happens when a Thunderjet finds itself in the traffic pattern behind a helicopter which has a rated cruising speed of over 120 mph but suddenly decides to "hold"? The problem, they say, is one of controlling traffic, not restricting it.

## Aid for Lightplanes

Charlie Parker, executive director of National Aviation Trades Association, places his fixed-base organization in favor of the Johnson Bill (S. 2984) to provide funds for development of aircraft for personal and industrial use. With the end of GI flight training in view, Parker believes that the future of the industry depends on the aircraft designs that will go into production in the next two years.

"One development which the Johnson Bill should include is that of less costly methods of both construction and production, as well as improved performance, etc., of aircraft. To further crack the low price market in the direction Bill Piper took last year in his introduction of the low cost Clipper is of the utmost importance. The right kind of financial assistance to the manufacturer could well continue this trend. With some real sales and increased recreational and business flying, everything would be stimulated and many of our present ills will tend to fade."

## Fixed-Base Surveys

Wiley Wright, director of CAA Office of Aviation Development, states that, contrary to reports, CAA definitely will carry out a census of fixed-base operators. The survey form, which originally added up to six pages of questions, is being cut down to one page. Final arrangements have not been made but the census will be carried out with the assistance of National Aviation Trades Association and National Association of State Aviation Officials. Mailings of the census forms should begin about the end of April. . . .

The economic survey of fixed-base operators being carried out in Minnesota by the state Department of Aeronautics promises some specific facts on the status of the fixed-base business. Minnesota Aviation Commissioner L. L. Schroeder writes, that "in an effort to pin down the reasons for the strong expressions of optimism which we are getting from our operators in Minnesota, we asked this group if they would submit to a survey of their business. They agreed to cooperate and as a result, forms were prepared and to date about 20 out of 100 operators

have been interviewed. The initial results are surprising, showing both the greater capital investment and a greater dollar volume, together with a smaller indebtedness than we had anticipated."

The survey forms are brief. There is one sheet with blank spaces for requested information on "charter operations"; a card for "business record" and "capital investment"; and a card for "facility record" and "airport maintenance record."

## For Better Maintenance

The exchange of information and views between aircraft manufacturers and CAA at the personal aircraft maintenance conference sponsored by Aircraft Industries Association in Kansas City last month should have long range benefits. The desirability of private aircraft owners doing their own maintenance was discussed, with general agreement that most aircraft owners could carry out limited preventive maintenance, increasing daily operating safety. Also discussed was the use to which aircraft manufacturers' manuals could be put in promoting this phase of aircraft maintenance. The manufacturers already are supplying some maintenance information to owners. As an alternative to the CAA Form 319 now being used, manufacturers would list essential maintenance procedures and alternate procedures which would be needed for different geographical operating conditions.

## Flashers for Safety

Indications are that the Civil Aeronautics Board will require flashing lights on personal aircraft used in night flying, such as discussed last issue. The new regulation would require a single circuit flashing position light system for light aircraft and a dual circuit flashing position light system for aircraft of 12,500 lbs. or more. The majority of pilots and airport operators who have given CAB their views seem to favor the regulation, if the cost of installation is as low as CAB says it will be. Aircraft manufacturers are preponderantly against the proposal, on the grounds that there are no satisfactory flashing position light units available on the market. CAB will hold off on the requirement until certain that low cost equipment is available.

One company has stated that it can provide the necessary equipment at \$3.50 or less and CAB estimates that the overall cost of parts and installation will not be more than \$10.

If you have anything to say on this proposed requirement, get a letter off to the CAB Bureau of Safety Regulation, Washington, D. C., as soon as you can. CAB is studying the comments now.

• **Brazil, Canada and France** are the chief foreign buyers of American personal aircraft, according to figures of the Aircraft Industries Association on 1949 exports. With purchases of 250 aircraft, these three countries accounted for more than 50% of the export total of 488 aircraft valued at \$2,207,361. The figures show a considerable drop from the 1948 export figures of 994 aircraft valued at \$3,898,803.

• **The Goodyear Tire and Rubber Co.** is discontinuing its sponsorship of the 190 cubic inch class air race. E. J. Thomas, Goodrich president, points out that the company originally agreed to a three-year sponsorship in order to get the new class started, and that has been accomplished.

• **Fate of Miami All American Air Maneuvers**, the long-standing January air show, is in the air—and no pun intended. Consistent financial losses may force decision to discontinue the annual event. The last one flopped sadly. Some fans believe a two-day show at lower admission prices might have fared better than three-day high-price tickets. Others believe it was too much aerobatics. About three-fourths of the last Miami air show was aerobatics—something pilots love to watch but the average spectator doesn't understand.

—B. J. W.

## LOCAL OPERATIONS



**Better Engine Service**—The first of eight scheduled operation and maintenance meetings, sponsored by Pratt & Whitney Aircraft in conjunction with its distributors, was held March 2 at Rentschler Airport, East Hartford, Conn. About 80 operators and owners of executive aircraft attended the discussion of engine problems and their solutions. Shown above, left to right, are J. R. Seaman, assistant treasurer, United Aircraft Corp.; Harley Lake, Socony Vacuum Oil Co.; L. L. Snow, airport manager, P & W; C. Harris Crook, general traffic manager, United Aircraft. Similar conferences were held March 7 at Northwestern Aeronautical Co., Holman Field, St. Paul, Minn.; March 10 at Pacific Airmotive Corp., Seattle, Wash., and March 14 at PAC, Oakland, Calif. Coming up are meetings on March 17 at PAC, Burbank, Calif.; March 22 at Southwest Airmotive Co., Love Field, Dallas, Tex.; June 8 at Airwork Corp., Millville, N. J., and September 7 at PAC, Linden, N. J.

## CAA Specification Changes

Piper PA-19 is approved for Continental C-90-12F, -8F engine with Sensenich 72GK50 propeller, McCauley 1B80 propeller. Koppers F200/00-73 propeller and Sensenich M76AK-2 propeller, by Specification No. 1A2.

Cessna 190, 195, 195A are approved for two 50.5 gallon fuel tanks in wings, by Specification No. A-790.

Ercoupe 415-D, -E and -G are approved for starter (Delco-Remy 1109666 part no. 5039) and baffle plate (Ercoupe P/N 415-40252), by Specification No. A-787.

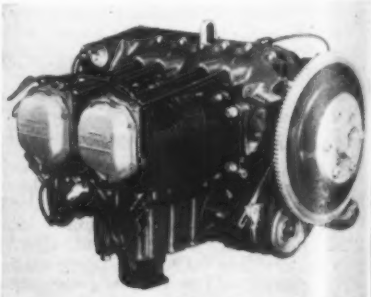
Aircraft Specification A-799 authorizes Federal A-2500A and A-3500, -3500A skis for the Cessna 170.

Cessna 170 is approved for installation of Continental engine C145-2 or -2H, by Specification A-799.

## CAA Airworthiness Directives

**Ercoupe Models 415C, 415CD and 415D.** Required installation of Erco Part Nos. 415-SK-287 and 415-22035 to preclude the possibility of elevator flutter in the event the elevator trim tab control wire fails. Compliance is required by May 1, 1950, in CAA Airworthiness Directive 50-7-1.

Airworthiness Directive 50-5-2 requires inspection of Vernier flexible push-pull throttle control adapters (models 3A-42 and 3A-81) for possible unscrewing of the male thread adapter which secures the outer casing of the throttle control to the body tube at the instrument. The directive applies to Beech Model 35, A-35, Ryan Navion and any other certificated aircraft using the Vernier throttle, to be accomplished not later than April 1, 1950. Failure of threads on the throttle adapter caused a recent serious accident.



**More Power**—This is the new Lycoming engine which is now being delivered to aircraft manufacturers. Designed primarily for use in four-place personal planes, the new engine develops 130 horsepower for take-off and is rated at 125 horsepower. It has a displacement of 289 cubic inches, bore of 4.875 inches, stroke of 3.875 inches and a compression ratio of 6.50 to 1. Fuel consumption of the Lycoming O-290 is 7.3 gallons per hour.

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### Deadline for CAR Comments

In accordance with an earlier pro-  
posal to initiate a yearly review of Civil  
Air Regulations, the CAB has estab-  
lished April 1 as the deadline date on  
which all comments from industry on  
the desirable regulatory changes must  
be submitted. Comments received later  
than April 1 will probably be withheld  
for the 1951 review.

The Board has prepared and is cir-  
culating CAR Draft Release 50-1 which  
outlines the present status of the various  
regulations and proposed changes to  
each Part. All industry comments rela-  
tive to these changes will be studied  
by the Board and will serve as a basis  
for the annual meeting.

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## En Route

(Continued from Page 62)

task of granting audiences and giving each person individual attention. I had been quite uneasy, myself, about what I should do and how I should act when the Pope reached me, but Ed Sullivan, TWA's interline and agency director who had joined our party for the day, assured me that the Pope expected nothing special from non-Catholics. As a matter of fact, I didn't bend a knee, probably the only one in the entire group who didn't, but the Pope's handshake was firm and warm and he blessed me, my family and my work. I also got a medal.

I am not greatly moved by meeting world figures. Few of them have any real depth of character, and casual receptions or interviews are meaningless. But I must say that the brief greeting by the Pope carried with it an amazing sense of individuality and personal magnetism—more than I have ever experienced or witnessed before.

Quite apart from any religious aspect, he is a great man to be able to carry through this enormous daily strain and yet continue to impart a feeling of individual attention. To Catholics, of course, such an audience means a great deal in a religious sense and some of them actually had bags of rosaries and the like to be blessed. Anything that is within the presence of the Pope, I was informed, is considered blessed. I left the Vatican with a sense of welling.

## TECHNICAL LITERATURE

**Ceramic Tests:** The National Bureau of Standards, Dept. of Commerce, Washington 25, D. C., is circulating Technical Report 1373, "High-Strength Ceramics for High-Temperature Use." This five-page report describes recent tests of the NBS which have "shown that several ceramic bodies previously developed by the Bureau have market superiority, in both strength and creep characteristics at 1800 degrees F. and above, over the best available high-temperature metal alloys."

**Thermal Studies:** The National Bureau of Standards, Technical Reports Section, Dept. of Commerce, Washington 25, D. C., has published technical report 1378 covering "The NBS-NACA Tables of Thermal Properties of Wind-Tunnel and Jet Engine Gases." The report describes the need for additional thermal data on many gases and outlines the program which the NBS is using in the compilation of this material in an easy-to-use manner. Three of the tables are now available and work is progressing on another 10 gases. Correspondence regarding the tables should be addressed to Joseph Hilsenrath, Heat and Power Div., NBS.

**Recording Transmitters:** Fredric Flader, Inc., North Tonawanda, N. Y., is distributing circulars describing its Miniature Electrical and Pressure Transmitters. The Tele-flight series of transmitters include pressure, acceleration, altitude, airspeed and custom instrumentation. The light-weight transmitters are powered by direct current and produce a DC output signal of sufficient magnitude to direct operation of recording galvanometers or, when powered by alternating current, yield an AC output suitable for carrier systems.

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**ENGINES**

# WINGS OF YESTERDAY

## 25 Years Ago

The reappointment of Read Admiral William A. Moffett as Chief of the Bureau of Aeronautics was announced by the Secretary of Navy on March 10, 1925.

As a result of protests by commercial aircraft companies, the use of government airplanes to expedite delivery of pictures or to photograph special events was discontinued.

Headed by Alfred V. Verville and Lawrence D. Buhl, the Buhl-Verville Aircraft Corp. was formed in Detroit, Mich. to manufacture commercial and military aircraft.

Harry Kirwood of San Francisco suggested a special low rate for carrying postcards by air mail.

## 10 Years Ago

(In AMERICAN AVIATION)

Domestic schedules airlines were planning to increase their total transport fleet by 28% during 1940. Deliveries of 76 new transports, costing over \$10 million, were expected to increase available seats by over a third.

Fire partially destroyed a nearly completed hangar at La Guardia Field which was to have been leased to TWA. Damage, estimated at \$250,000, was expected to delay completion by an additional six weeks.

The Navy Department assigned the commandant of the Naval Flying School at Pensacola to command patrol wing 2 at Pearl Harbor, including five squadrons of long-range Consolidated patrol bombers.

# LETTERS

## Airport Coordination

To the Editor:

We wish to extend our appreciation for your excellent editorial in the March 1 issue of AMERICAN AVIATION.

As a new feeder line experiencing the difficulties of providing new service to some communities with inadequate airport facilities, we are conscious of the acute need for an economical short haul feeder airplane. As you are aware, our company had the choice of operating on approximately one-third of its routes with DC-3 equipment or combining a Bonanza single-engine operation on the remaining segments with the DC-3 operation until the airport conditions could be improved to accommodate the DC-3.

Naturally, many communities in this area are reluctant to go ahead with an airport improvement program until they actually have concrete evidence that the airline will serve them; and with the possibility that

the community may be dropped from the feeder route, their hesitancy and reluctance to spend considerable sums for air transport airports with adequate navigational and lighting facilities is quite understandable. Most feeder airlines are in the position of attempting to pressure the community into providing every available facility at the airport in order to provide all-weather, twenty-four hour service. Right now, we are operating under restricted and uneconomical conditions since many airports do not have night landing facilities or navigational aids.

You may be aware that Colonel Cornish and the Indiana Aviation Commission are undertaking the task of attempting to coordinate the overall route development of the airlines and the needs of affected communities in Indiana for continued airline service. It will be an interesting highlight to see how TWA, Chicago & Southern and Delta handle those communities in Indiana that are on a temporary certificate. If my recollections are correct, several Indiana and Ohio communities served by those air carriers come up for recertification next fall. As you have mentioned in your editorial, there exists in this area an excellent project for the Airport Advisory Committee to coordinate with the Civil Aeronautics Board.

K. ROBERT HAHN  
Assistant Vice President  
Turner Airlines, Inc.  
Indianapolis, Ind.

## Urges Apprentice Program

To the Editor:

It is with great interest that I read your article "Extra Section" by William D. Perreault, in the February 15 issue concerning the separation of the A & E licensing into specialization groups.

As you wrote, so I write—I am very much against it. Small aircraft operators would be handicapped; airlines would have a definite loss of general mechanics from which to get inspection and supervision personnel, such persons being those with a well-rounded knowledge of airline maintenance and routing. As you very well know, this is a good sized job.

Referring to your paragraphs about the airlines working with mechanics schools, I sincerely believe they are in error by not going through with an apprentice training program. There was such a program once set up and in operation. It proved a savior to several major companies after the war began. It provided them with a nucleus of general line maintenance mechanics which no present-day school will ever be able to put out.

If such a program went into effect, it would reinstate the feeling of the airline into the trainee. He would learn the management of the company and learn the reasons why the company operated the way it did. He would be made to feel a part

of it. This airline and company spirit is nearly lost.

A well trained apprentice mechanic would be schedule conscious the moment he went on the line. He would be able to ascertain whether a ship could be used for a trip right now and not have to call a specialist, who would take time to find, and result in late schedules and continued delay.

DON HAZEN  
American Airlines  
Burbank, Calif.

# BOOKS

TO THE MOON AND HALFWAY BACK. By Roger Q. Williams. 292 pp. Illustrated. Published by Arque Aviation Press, 1265 Manuel Court, Oakland 3, Calif. \$6.00.

Here is a book that every old-timer will want. It isn't a polished history of aviation or even of the story of Roger Williams himself. It isn't carefully edited, it isn't well organized and it isn't even well written. But it is Roger Q. Williams speaking and if it wasn't just like it is, then it wouldn't be half as good as it is.

Williams has forged a deep niche for himself in aviation history. He started "way back when. He's done everything from setting records to serving in the Air Force. His story is, in a large sense, the story of aviation in the U. S. He has a lot of very fine photographs and the book is worth \$6 just for those alone.

It is good that Williams put the story of the early days in print because the beginnings and heroes of U. S. aviation are fast receding into the dim past. This is a collector's item.

# OBITUARY

## Henry B. Taylor

Henry B. Taylor, 57, veteran CAA official and formerly connected with several airlines, died February 22 in San Francisco from a heart ailment. At the time of his death, he was CAA's maintenance agent assigned to United Air Lines' San Francisco maintenance base. In 1928, Taylor was chief mechanic for Texas Air Transport, became superintendent of maintenance for American Airlines in 1932, spent 1933 with Pan American-Grace Airways in Peru, then returned to American, and joined the Bureau of Air Commerce in 1937 as chief of maintenance.

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**Steak at Mario's.** Rome, Feb. 4— (Continued from March 1 issue.) It was hard to get up in time to make Ambassador Dunn's 10 o'clock press conference but I finally crawled out of bed and pushed the button for the floor waiter at the Excelsior. A fine characteristic of European hotels, this having breakfast in your room. Often difficult to have it anywhere else. A waiter for each floor.

It's a fine custom, that is, if you can find the right button to push and if the waiter knows at least a few words of English. I managed to get tangerines (not very sweet this time of year), a couple of boiled eggs (always small in Europe, it seems, and not too tasty), the usual hard-brick toast and rolls, and that awful coffee with hot milk. The custom is fine, the breakfast usually isn't.

The first night in Rome had been a whirl. Flying all day from Ireland to Italy, rushed to my hotel, then to the Ambassador's residence for the big TWA reception, then to a small spot called Mario's near the Excelsior with Bob Considine, the newspaper columnist and Stan Markusen, TWA's pubrel chief in Europe.

Considine has a never-ending supply of good stories. He loaded up with that famous Italian dish called fetuccini, although I may not be spelling it cor-

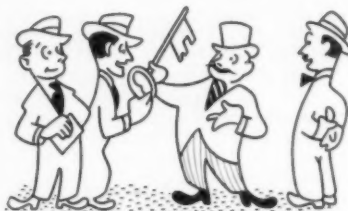


Loading up at Mario's . . .

rectly. Stan and I had super-excellent steaks with good sauce, broiled right at our table. Mario's is after American patronage. The music was good, the conversation engaging. But it was late and I was bushed. Even those slam-bang street noises that seem to go on all night in Rome couldn't disturb my sleep.

The imposing American embassy is just down the street from the Excelsior. I was late in joining the gang listening to Ambassador Dunn (one of our best ambassadors) give a briefing on Italy's current political and economic situation. U. S. aid did much to stem the tide of Communism, and Italy today, while not recovered and not too sound economically, is in far better shape than it was in 1947 when the crisis came.

**The Hassler.** From the embassy we went in buses to Capitoline Hill to be received by the mayor. The red carpet was out literally and figuratively. After the mayor welcomed us, one of the characters in our press party re-



The red carpet was out . . .

sponded. He began with "Friends, Romans and Countrymen," so corny that it was funny. He couldn't have picked a more appropriate place to be a clown, since the reception was just a few hundred yards from the famous forums of Rome. After the speeches came the inevitable cocktails and a tour of the museum.

By this time it was noon so we hied off to the Hassler Hotel at the head of the famous Spanish Steps and overlooking the business section of Rome. More than one Air Transport Command and Air Force officer will well remember the Hassler. Built by some Swiss, it never got opened, I believe, before the war. It was the ATC officers' hotel and mess in 1945 and I well remember the coffee bar open all morning in the lower lounge for those who couldn't get up in time for the regular mess.

I stayed there in 1945 with Norman Blake, then an ATC colonel. We were accompanying the pioneering Pan American flight from Paris to the Middle East via Prague and Vienna. Norman is now AOA's boss in London, a first class traffic man.

We were luncheon guests of the local chamber of commerce. The cocktails seemed interminable and when we finally got in to a rather poor lunch, the session dragged on and on. I slipped out and returned to my hotel for a nap. After all, there was another cocktail party at 6 at the Flora Hotel. And dinner with some of the gang at Alfredo's restaurant which didn't seem to live up to its advance billing. There are at least 3,000 restaurants in New York that are better.

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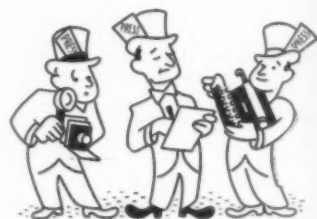
**St. Peter's.** Rome, Feb. 5—This was the big day. Sunday. An audience with the Pope scheduled for 11 o'clock. Nobody was late for the 10 o'clock bus departure and I probably should say at

this point that the American Express Co. furnished all transportation for us and did a swell job of it.

There were some in the crowd, like me, who are not Catholics. As a Baptist I thought I should put up the best Protestant front I could. So I bought some rosaries to be blessed by the Pope so I could give them to Bill Henzey, Bill Perreault and Doris Rowzee, all good Catholics in our Washington office.

I had spent a lot of time in St. Peter's and the Vatican museum many years ago—the art treasures are beyond description—but I had never had an audience with the Pope. Everybody was excited. Several of the press gang wore full dress (white tie) outfits but ordinary dress seemed to be perfectly okay. There were even some loud American ties in evidence.

When we reached the huge plaza in front of St. Peter's there were crowds going into and coming from the basilica. Holy Year pilgrims aren't as plentiful as had been expected but will increase after Easter. To reach the Vatican chambers we entered the series of buildings adjacent to the basilica on the north, climbing endless stairs and crossing an open court until we finally reached the series of rooms where the Pope receives visitors. We filed by fancily-dressed guards and flunkies into a big beautifully-decorated rectan-



The press wore full dress . . .

gular room with a throne at one end. Seated around three sides of the room were about a hundred or so pilgrims also waiting for the audience. They were from all parts of the world but predominantly American, I should guess.

\*\*\*

**The Audience.** We formed a single-row rectangle in the center of the room. And there we stood for about half an hour. Flunkies hopped about from time to time, moving us a foot one way and then another. Much formality and fuss. Then the Pope appeared from a side door and made the rounds, first, of the pilgrims lining the walls. He stopped before each one, asking the name and the home town, shook hands, gave a blessing and handed each one a medal.

Sometimes he made comments about the city or country. He switched from one language to another with lightning facility. Devout Catholics kissed his ring. Almost everyone knelt in lesser or greater degree. But he gave as much attention to non-Catholics as he did the devout followers.

I was fascinated by the whole performance. Added to the normal strain of his responsibilities is this demanding

(Turn to Page 60)

AMERICAN AVIATION



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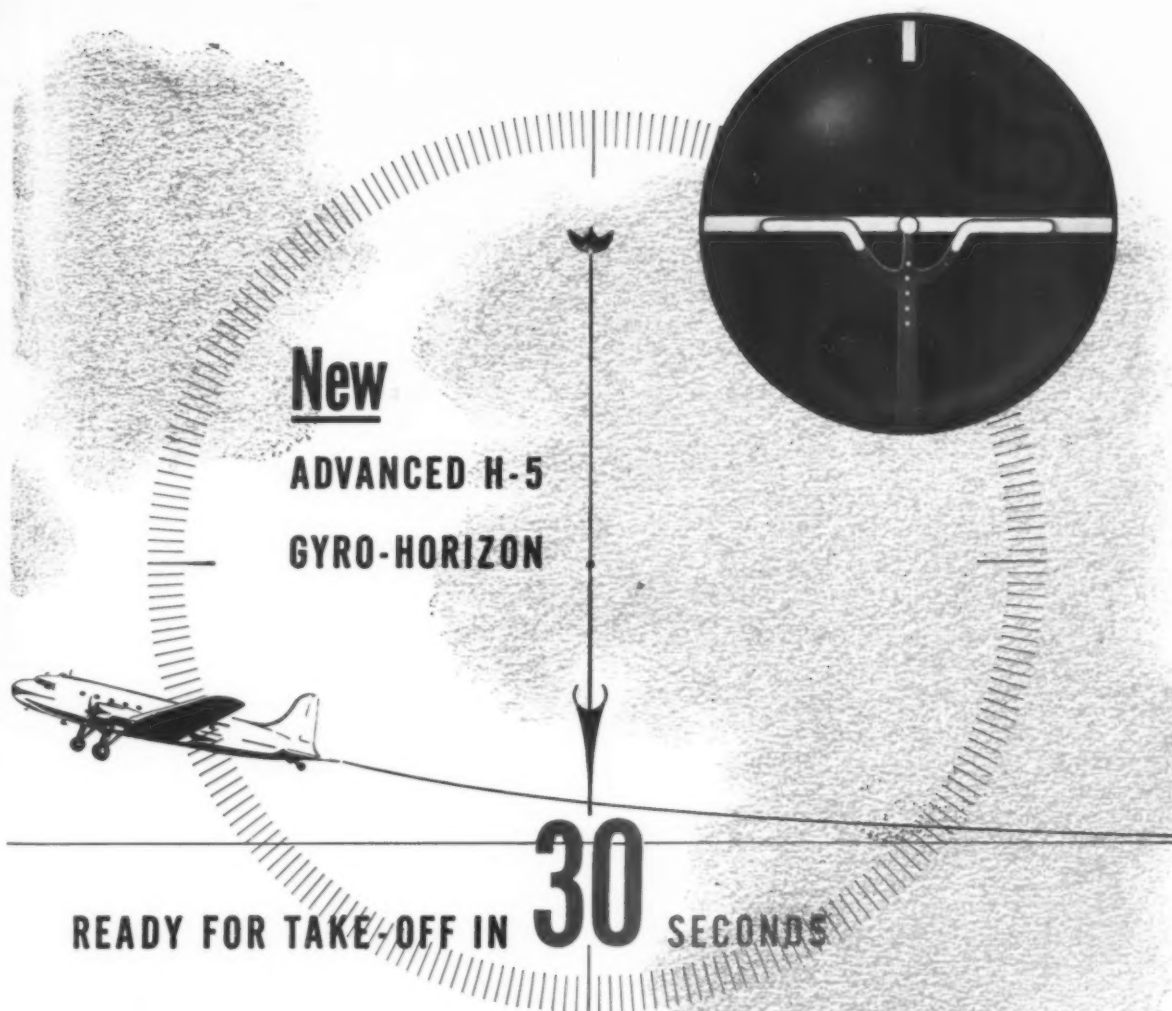
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